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Original Articles

Continuity Reexamined:

Differential Impact on Satisfaction with Medical Care for Disabled and Normal Children

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The satisfaction with medical care of families with disabled children and of randomly selected families is compared to test the hypothesis that the impact of continuity of physician on parental satisfaction is greater when disabled children are patients than is the case among the general population of children. A multiple regression approach for the study of interaction was used. The results provide general confirmation for the hypothesis that the weights of continuity in producing change in all three patient satisfaction areas studied were greater in the sample of families with disabled children than in the random sample of families. Controlling for maternal education, family income, race and waiting time did not alter these results. It is suggested that a continuous doctor–patient relationship, conducive to the expression and resolution of psychological needs, is of special importance when a patient's illness is severe. Implications for the organization of medical care in specialty clinics, which serve the disabled and chronically ill, are discussed.

CONTINUOUS CARE from a single physician has generally been viewed as a distinctive prerequisite in primary care.[1–3] It is assumed that continuity promotes a stable doctor–patient relationship, and enhances patient trust in medical recommendations and physician concern and efficacy. Visits to specialists for the diagnosis and treatment of complicated medical problems are viewed as necessary interruptions of this relationship. Medical care from specialists is said to be problem focused, and with the resolution of the problem it is assumed that patients would return to their primary physicians, with whom their continuous relationship is expected to span long periods, during both illness and health.

Since studies of medical programs offering continuous care have been conducted largely in primary care settings,[4–10] the resultant literature implies that continuity of care is only relevant to primary care settings. This is consistent with the idea that primary and specialty care perform differentiated and complementary functions for which different structures are required, i.e., continuity for the functions of primary care, not for those of specialty care.

In recent years there has been a growing recognition that medical care in the United

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States does not fully conform to this model: the actual functions performed by primary care physicians and specialists are not as distinct as one would expect.[11] A recent analysis[12] estimated that approximately one fifth of the population receives regular ongoing care (i.e., primary care) from specialists. This fraction consists chiefly of chronically ill and disabled patients. A considerable proportion of such specialty medical care is based in hospitals and medical centers, and is organized by pooling fragments of work schedules of several practitioners whose total work effort is divided among patient care, teaching, research and administration. In contrast to the traditional small office practice, in which continuity of physician follows from the patient's continuous use of the setting, repeated use of the large medical center or hospital clinic does not in itself secure continuity of physician.[7] Although some specialty clinics have deliberately set up conditions for continuous patient care from a single physician, the typical organizational structure of the clinic produces medical care that has been described as fragmentary and discontinuous.[6] Yet, the prevailing conceptual model of medical care, which assumes a functional differentiation between primary and specialty medicine, has excluded specialty medical settings from the realm of concern with continuity of physician. And, since specialists provide ongoing care to chronically ill and disabled patients, the continuity of their care has not been a focus of concern either.

Some writers have recently suggested that continuity of physician may be more important in the care of chronically ill patients than in that of the general population.[2,3,7,13] The rationale for this suggestion has not been explicitly stated. While the requirement of consistency in the information given to severely disabled patients and other specific arguments might be advanced in support of this hypothesis, a more self-evident argument is that the characteristics of medical care, including its continuity, would have a greater influence on the attitudes of chronically ill patients who use medical care frequently than on the attitudes of those free of illness who use it more sparingly.

In a recent paper[11] we reported the effect of continuity of physician on satisfaction with medical care in a study of families of disabled children receiving care in four specialty clinics. Continuity of physician accounted for a large part of the difference in satisfaction across the clinics. Further, continuity of care contributed to patient satisfaction in specialty clinics that provided all of a patient's medical services as well as in clinics that provided only specialized care, excluding the treatment of intercurrent illness and immunizations. The results indicated that continuity of physician exerted a strong influence on the ways in which families of disabled children evaluated their doctors and the medical care they received in specialty clinics. They could not, however, answer the question of whether or not the impact of continuity on satisfaction in this sample was greater than it would be in a sample of families with children free of disabilities.

This article considers that question. The satisfaction with medical care of families with disabled children and of randomly selected families is compared to test the hypothesis that the impact of continuity on parental satisfaction is greater when disabled children are patients than is the case among the general population of children.

Measures of satisfaction with medical care constitute valid reflections of the pertinent realities of medical care, as well as the values placed by patients on the costs and benefits associated with it.[15] Differences in values would result in different levels of satisfaction, even when other factors in the medical settings evaluated were held constant. Therefore, the value of continuity for different groups of patients can be assessed in terms of its weight in producing change in satisfaction. If this weight is greater in one group than in

another, all other things being equal, it can be inferred that it is valued more in the one group than in the other.

Methods

Sample of Children with Disabilities (SCWD)

Families of children with cystic fibrosis, cerebral palsy, myelodysplasia and multiple handicaps were selected from the case loads of four pediatric specialty clinics in two teaching hospitals in Cleveland, Ohio. The majority of children with these conditions are referred to tertiary medical institutions. Since the participating hospitals are two of the three tertiary hospitals in the Cleveland area, their clinics' case loads provide relatively representative samples of area children in these diagnostic categories. The four clinics provide care for all cystic fibrosis patients and the majority of patients with myelodysplasia in the area. Although the proportion of area children with cerebral palsy cared for in these clinics cannot be estimated, they come from a wide range of socioeconomic backgrounds and referral networks. Multiple handicaps comprise a wide variety of congenital disorders, all with physical stigmata, some of which are identifiable as specific syndromes. Although the exact proportion of such children in the community who receive care in these clinics cannot be determined, it may well be the majority.

All families of active patients between three and eighteen years of age in these diagnostic categories who resided in the Cleveland area were asked to participate in the study. From 460 eligible families, 369 (80 per cent) complete and usable interviews were obtained. † The sample includes 77 families of children with cystic fibrosis, 118 with cerebral palsy, 82 with myelodysplasia and 92 with multiple physical handicaps.

Sample of Children in the Community (SCHC)

A three-stage probability sample was designed to represent all area (Cuyahoga County) families with children between three and 18 years of age. The 1977 Cleveland Area Survey (CAS) sampling scheme and lists of blocks and addresses were used for drawing this sample. The CAS classified all blocks (using updated 1970 Census data) into six strata according to: 1) racial composition (less or more than 50 per cent blacks) and 2) average housing value (high, medium, low). Three hundred blocks were randomly selected from these six strata, each stratum providing a fraction proportional to the total population that the stratum encompassed. Five households were randomly selected from each block, yielding 1,500 households to be screened as to whether they contained a child between the ages of three and 18 years and thus were eligible for the study. From 534 eligible families, 459 (85 per cent) complete interviews were obtained.

For the medical care of their children, 75 per cent of the families used private pediatric offices in the community; the remaining families used outpatient departments of local hospitals, a large prepaid medical group practice, city- and county-owned clinics, or a variety of other facilities in the area.

Data and Measurement

Mothers were interviewed in their homes using a structured questionnaire with several self-administered instruments. Trained female interviewers, matched according to respondent race, conducted the interviews. Information was obtained on a wide range of areas, including sociodemographic characteristics, the health status of an Index Child (the disabled child in the SCWD and a randomly

† In a previous article from this study (Breslau and Mortimer, 1981) and in reports of other studies in which the PSQ was used, items were scored from 1 to 5. Translation of scores by shifting them to a 0 to 4 range was employed to simplify the presentation of the statistical analysis.

selected child between three and 18 years of age in the SCHC), health services used on his or her behalf, and satisfaction with medical care, i.e., the specialty clinics in the SCWD or a variety of medical settings in the SCHC.

Satisfaction with medical care was measured by the Patient Satisfaction Questionnaire (PSQ), developed by Ware et al.[15,16] The PSQ consists of 43 statements that form eight subscales. Respondents were asked to state whether they agreed or disagreed with each statement on a 5-point scale ranging from strongly agree (scoring 4) to strongly disagree (scoring 0). ł Scale scores were computed by summing the scores for items contained in each scale, after reversing the codes of replies to unfavorably worded items. Scale scores thus measure approval of, or satisfaction with, the medical care evaluated: the higher the score, the greater the satisfaction.

Continuity was measured by respondents' reports of the extent to which their visits to the clinic (or doctor's office) were attended by the same doctor. The three-item continuity scale (with possible scores of 0 to 12) was used. The three items are descriptive rather than evaluative, and as such do not measure satisfaction with continuity but instead continuity of physician itself.[17] On the basis of a review of previous studies and their own research, Ware et al.[15] concluded that this scale is a valid measure of continuity of physician. Internal consistency reliabilities (Cronbach's alpha) were 0.53 in the SCWD and 0.50 in the SCHC. Three scales—Quality of Care (with seven items and possible scores of 0 to 28), Humaneness of Doctors (with eight items and possible scores of 0 to 32) and General Satisfaction (with four items and possible scores of 0 to 16)—were used as dependent variables in this analysis. Reliabilities (Cronbach's alpha) were, in the SCWD and SCHC, respectively, for Quality, 0.67 and 0.67; for Humaneness, 0.78 and 0.81; and for General Satisfaction, 0.82 and 0.70. (See Appendix for scale items.) These scales measure patient evaluations of the affective and instrumental dimensions of the medical care they received and their general satisfaction with it. Other scales of the PSQ refer to more specific conditions of medical care and are therefore less appropriate indicators of the impact of continuity of physician on patient attitudes.

Three patient characteristics—education, income and race—were used as control variables. Mother's education was measured by years of schooling completed, and income was defined as total family income for 1977. Race was measured as a dummy variable, with a value of 1 assigned to whites and 0 to nonwhites. Patient estimate of waiting time in the doctor's office was also used as a control variable. Previous research has found consistently that patient satisfaction was affected by waiting time,[17,18] and, since long waits often characterize clinic settings in which continuity of physician tends to be low, the effect of continuity on patient satisfaction would be more accurately measured when the influence of waiting time is controlled. A single item from the PSQ "People are usually kept waiting a long time when they are at the doctor's office," measured waiting time in this analysis. Possible scores on this scale were from 0 to 4. In a previous article, data were presented to support the construct validity of this measure.[14]

Analysis

The analysis reported here uses a multiple regression approach designed for the study of interaction.[19] The hypothesis to be tested is that of an interaction effect: the impact of continuity of physician on patient satisfaction is greater in the sample of disabled children (SCWD) than in the randomly selected community sample (SCHC). Such an interaction effect can be tested and estimated by adding, in a hier-

archical order, a product term (group membership × continuity) to the regression equation:

$$\bar{y} = a + b_1x_1 + b_2x_2 + b_3x_1x_2,$$

where $\bar{y}$ = satisfaction, x_1 = group membership, x_2 = continuity. When group membership is defined as a dummy variable, with a value of 0 assigned to SCHC and of 1 to SCWD, the specific interaction hypothesis would predict that: 1) b_3 is statistically significant, and the increment in the proportion of variance of $\bar{y}$ accounted for by the interaction term is significant; and 2) the signs of the coefficients b_2 and b_3 are positive, indicating that the continuity slopes in both groups are positive and that the slope is steeper in the SCWD than in the SCHC. If the interaction is significant, the regression coefficient of satisfaction on continuity can be calculated for each group from the overall regression results as follows: the intercept for the overall regression, a, measures the intercept for the regression equation for the SCHC (i.e., the group assigned 0). The intercept of the regression equation for the SCWD (i.e., the group assigned 1) is equal to the intercept for the overall regression, a, plus the coefficient for group membership, b_1. The partial regression coefficient of the interaction term, b_3, measures the difference between the regression coefficients of continuity in the SCWD and in the SCHC, and the partial regression coefficient of continuity in the overall regression, b_2, measures the regression coefficient of continuity in the SCHC. The regression coefficient for continuity in the SCWD is, therefore, equal to b_2 plus b_3. From these separate regressions, one can calculate the point of intersection of the two regression lines and determine whether the interaction is ordinal or disordinal, i.e., whether the rank order of the two groups with respect to satisfaction is constant or whether it is reversed with changes in continuity.

The same analytic procedure can be employed when the model includes control variables:

$$\bar{y} = a + b_1c_2 + b_2c_2 + b_3c_3 + b_4c_4 + b_5x_1 + b_6x_2 + b_7x_1x_2,$$

where $\bar{y}$ = satisfaction, c_1 to c_4 = control variables (i.e., education, income, race, waiting time), x_1 = group membership, x_2 = continuity.

Results

Table 1 presents descriptive statistics for the variables in the full model. The two groups—the sample of disabled children (SCWD) and the sample of children in the community (SCHC)—varied in maternal education, family income and racial composition, as can be seen in Table 1. The SCHC had, on the average, a higher level of maternal education than the SCWD, 12.6 and 12 years of schooling, respectively. In 1977 dollars, the SCHC had higher mean family income than the SCWD, $21,000 and $16,000, respectively. The proportion of non whites in the SCHC was higher than in the SCWD, 31 and 24 per cent, respectively.

Waiting time in the doctor's office or clinic had, on the average, similar scores in the two groups, 2.69 in the SCWD and 2.62 in the SCHC. This finding suggests that patients of hospital clinics did not regard the waiting time in these settings as more burdensome than did patients their waiting time in other settings, commonly believed to be more convenient and more accommodating to patients.

An inspection of Table 1 also reveals that medical care received by disabled children was less continuous, compared with care received by normal children, scoring 6.82 and 7.88, respectively. The difference in mean continuity between the groups, although statistically significant, was relatively small. The range of the observed scores was similar in the two groups, from 0

TABLE 1. Zero-Order Correlations, Means, Standard Deviations and P-Values of Control, Independent and Dependent Variables for SCWD* and SCHC*

Variables	Zero-Order Correlations†								Means and SDs‡		P-Value§
	1	2	3	4	5	6	7	8	SCWD (n = 369)	SCHC (n = 459)	
1. Income	—	0.36	−0.25	0.22	0.08	0.02	0.14	0.10	16,000 (11,449)	21,000 (15,476)	<0.001
2. Education	0.40	—	−0.12	0.10	0.12	0.05	0.08	0.08	12.00 (2.40)	12.60 (2.14)	<0.001
3. Race (% nonwhites)	−0.33	−0.21	—	−0.11	−0.01	0.04	0.00	−0.07	24 —	31 —	<0.001
4. Waiting Time	0.10	0.13	−0.14	—	0.33	0.40	0.48	0.49	2.69 (1.22)	2.62 (1.14)	NS
5. Continuity	0.12	0.18	−0.26	0.26	—	0.40	0.50	0.44	6.82 (2.26)	7.88 (1.97)	<0.001
6. Satisfaction with Quality	−0.00	0.05	0.01	0.30	0.22	—	0.75	0.71	18.61 (3.99)	17.67 (3.82)	<0.001
7. Satisfaction with Humaneness	−0.03	−0.02	0.01	0.33	0.23	0.66	—	0.77	21.68 (5.33)	20.30 (4.66)	<0.001
8. General Satisfaction	−0.02	0.02	−0.05	0.34	0.26	0.64	0.65	—	10.74 (3.26)	10.63 (2.41)	NS

* SCWD: Sample of Children with Disabilities; SCHC: Sample of Children in the Community.
† Top triangle = SCWD; bottom triangle = SCHC.
‡ Standard Deviations shown in parentheses.
§ The p-value for RACE is shown from a chi-square test. All others are based on t-tests of the difference between two sample means.

to 12 in SCWD and from 1 to 12 in the SCHC, indicating that the levels of continuity experienced by patients in the two groups overlapped almost completely.

A comparison of the two groups on the three satisfaction scales, presented in Table 1, indicates that mothers of disabled children cared for in the specialty clinics scored higher than mothers from randomly selected households on Quality of Care and Humaneness of Doctors. The differences were relatively small but statistically significant. On General Satisfaction, the two groups were virtually the same, and the minor difference was not statistically significant.

These findings taken together are somewhat puzzling: of the two groups, the one with the lower mean continuity—SCWD—had, on the average, higher scores of satisfaction with doctors' attitudes and competence. On the surface, they disconfirm the proposition that continuity promotes patient satisfaction. One may speculate that the differences in patient demographic characteristics account for the unexpected results: the community sample includes more families from high socioeconomic strata, who may be less satisfied because they hold higher expectations. It will be shown, however, that the findings at the aggregate level are misleading and that the explanation for them lies elsewhere.

The hypothesis that patient satisfaction was not equally associated with continuity of physician in the two groups was tested. In three separate regression analyses, using the combined sample (n = 828), the three patient satisfaction scales were regressed on 1) group membership; 2) continuity; and 3) a product term of group membership × continuity. Group membership was defined as a dummy variable, with a value of 1 assigned to SCWD and 0 to SCHC. Results from the three analyses, presented in Table 2, provide general confirmation for the hypothesis. Ordinary least-squares unstandardized regressions are presented in the table; coefficients whose values exceed twice their standard errors are marked as asterisks as statistically significant. For all three satisfaction scales, the regression coefficients for the interaction of continuity with group membership, b_3, were statistically significant. Table 2 also shows that the coefficients for continuity, b_2, which measure the regression lines in the SCHC, were also statistically significant. From their signs, it can be inferred that in the SCHC continuity was positively related to all three patient satisfaction scales. All three regression coefficients of the interaction term, b_3, were also

TABLE 2. Regressions of Satisfaction Scales on Continuity, Group Membership and Continuity × Group Membership (n = 828)
(unstandardized regression coefficients; standard errors in parentheses)

	Independent Variables				
Dependent Variables	Group (b_1)	Continuity (b_2)	Continuity × Group (b_3)	Constant (a)	R^2
Quality	−1.344 (1.296)	0.424* (0.087)	0.276* (0.122)	13.057	0.112
Humaneness	−4.299* (1.603)	0.541* (0.108)	0.636* (0.151)	14.410	0.170
General Satisfaction	−2.581* (0.917)	0.321* (0.062)	0.308* (0.086)	7.137	0.142

* Coefficient exceeds twice its standard error.

positive, indicating that in each area of satisfaction the difference in continuity weight between SCWD and SCHC was one of excess for SCWD. Consequently, it can be deduced that the weight of continuity in producing change in each of the three patient satisfaction areas was greater in the SCWD than in the SCHC. The model explained 11 per cent of the variance in satisfaction with Quality of Care, 17 per cent in satisfaction with Humaneness of Doctors and 14 per cent in General Satisfaction.

To describe the nature of the interactions more clearly, regression equations for each group were calculated from the results of the overall regressions. These are presented in Table 3. In all three areas, patient satisfaction was considerably more strongly dependent on continuity of physician in the sample of disabled children (SCWD) than in the community sample (SCHC). In Humaneness of Doctors, the excess impact of continuity in the SCWD was the greatest: the coefficient for continuity in this group was 1.177, compared with 0.541 in the SCHC, indicating that the change in satisfaction with Humaneness associated with a unit change in continuity in the SCWD was more than twice as large as a corresponding change in the SCHC. In satisfaction with Quality of Care, the excess impact of continuity in the SCWD was the smallest, but even there it was one and two-thirds times greater than in the SCHC, 0.700 and 0.424, respectively. In General Satisfaction, the impact of continuity in the SCWD was almost twice as great as in the SCHC. In Table 3 appear also the values of the intercepts of the regressions in the SCWD and in the SCHC. In all three areas of patient satisfaction, the intercepts were lower in the SCWD than in the SCHC, indicating that at zero continuity, families of disabled children were less satisfied than were families of the community sample.

The efficacy of continuity in predicting satisfaction was markedly greater in the SCWD than in the SCHC, according to the correlations of continuity with the three satisfaction scales (Table 1). The values of continuity at the point of intersection were calculated from the intercepts and the regression coefficients for continuity in Table 3. The value of continuity at the point of intersection of the two regression lines was well within the range of interest for each of the three dependent variables in this study. Thus, for each area of patient satisfaction, the interaction was disordinal: at low levels of continuity, those in SCHC were more satisfied, but at high levels of continuity, those in SCWD were more satisfied. A clear picture of these results can be seen by plotting the regression lines for the two groups, as was done in Figure 1.

The hypothesis that the impact of continuity on satisfaction was stronger in the sample of disabled children (SCWD) than

TABLE 3. Estimates of Separate Regression Equations of Three Satisfaction Scales on Continuity in SCHC* and SCWD* (unstandardized regression coefficients)†

Dependent Variables	SCHC		SCWD		Continuity at Point of Intersection
	Constant	Continuity	Constant	Continuity	
Quality	13.057	0.424	11.723	0.700	4.833
Humaneness	14.410	0.541	10.111	1.177	6.759
General Satisfaction	7.137	0.321	4.556	0.629	8.399

* SCHC: Sample of Children in the Community; SCWD: Sample of Children with Disabilities.
† All differences between corresponding regression coefficients are statistically significant ($p < 0.05$).

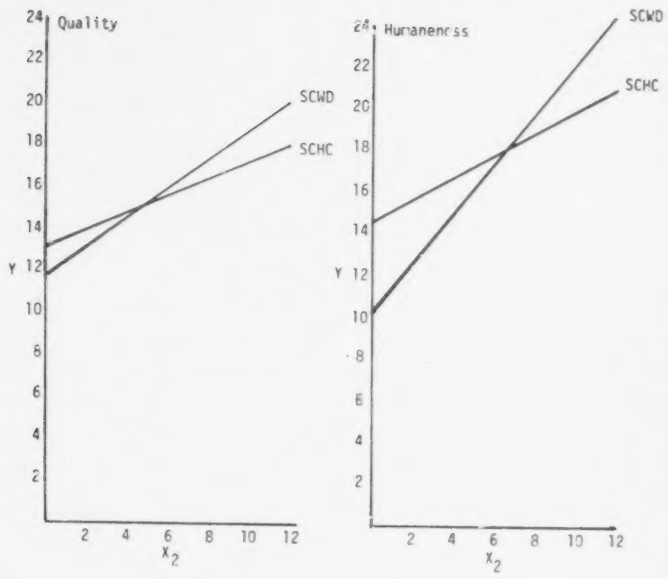
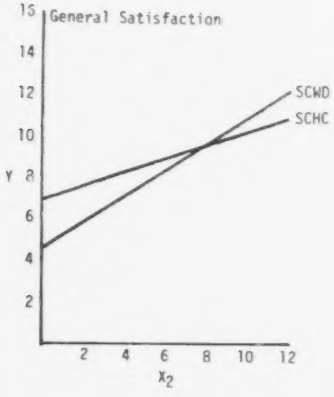


FIG. 1. Regressions of satisfaction (Y) on continuity (X_2) for SCWD and SCHC.



in the community sample (SCHC) was tested also net of the effects of maternal education, family income, race and waiting time upon arrival. In three regression analyses using the combined sample (n = 828), satisfaction was regressed on mothers' education, family income, race, waiting time, group membership, continuity and a product term of group membership × continuity. The results of these analyses are presented in Table 4. As can be seen from this table, none of the sociodemographic variables had statistically significant regression coefficients in any of the three equations. In contrast, waiting time had statistically significant coefficients in all three regression equations. Their positive signs indicate that shorter waiting time produced an increase in patient satisfaction with Quality of Care and Humaneness of Doctors, as well as in General Satisfaction with medical care. The

TABLE 5. Estimates of Separate Regression Equations of Three Satisfaction Scales on Continuity in SCHC* and SCWD,* Controlling for Education, Income, Race and Waiting (unstandardized regression coefficients)†

Dependent Variables	SCHC		SCWD		Continuity at Point of Intersection
	Constant	Continuity	Constant	Continuity	
Quality	11.652	0.307	10.487	0.539	5.021
Humaneness	13.042	0.371	8.976	0.950	7.022
General Satisfaction	6.840	0.197	4.216	0.485	9.111

* SCHC: Sample of Children in the Community; SCWD: Sample of Children with Disabilities.
† All differences between corresponding coefficients are statistically significant ($p < 0.05$).

Discussion

The results of this analysis confirm the hypothesis that the impact of continuity on satisfaction with the medical care provided to their children was greater in a sample of families of disabled children than in a sample of randomly selected families. In regard to key dimensions of medical care, continuity of physician influenced favorably the evaluations of families in both groups: as continuity rose, so did their approval of the quality of care, the humaneness of doctors and the overall level of medical care. The greater impact that continuity had on the attitudes of families of disabled children, compared with those of randomly selected families, meant that when medical care was discontinuous, families of disabled children were less satisfied than the randomly selected families, but when continuity was at a high level, their satisfaction was greater. The results thus indicate that families with disabled children, who attend specialty clinics, place greater value on seeing the same doctor from visit to visit than do families whose children are free of disabilities.

The analysis focused on the hypothesis that the impact of continuity on patient satisfaction is greater in families with disabled children than in the general population; it did not attempt to specify the factors that might explain this difference. Clearly, compared with children in the general population, disabled children have more severe health problems, which bring them to doctors' offices more frequently. Future research should attempt to estimate the extent to which these and other factors account for the relationship between continuity and satisfaction in these families. With respect to one such factor, namely differences in severity among the disabled children, a previously reported analysis from this study failed to find significant effects on satisfaction.[14] It should be kept in mind, however, that *all* the disabled children in the study had life-threatening or severely handicapping conditions, in spite of wide variation in their physical limitations at the time of the study.

It may be that, due to the distress experienced by families of disabled children, medical care serves for them an important function beyond the technical procedures it brings to bear on the diagnosis and treatment of the illness. Parsons[20] suggested that patients attribute to their physicians significance as persons that may not be directly relevant to their technical functions. Although this becomes of key importance in psychotherapy (where it is referred to by the term transference), it is always a factor in doctor-patient relationships. Its importance, according to Parsons, is proportional to the duration of the relationship and, even more so, to the emo-

tional importance of the health problem and, hence, the relationship to the physician. Other writers have emphasized the importance of the severity of the illness as an influence on patients' attitudes toward their physicians.[21,22] Specifically, it was suggested that the affective dimension in a doctor–patient relationship looms larger as the patient's illness arouses higher levels of anxiety. Similar arguments were advanced recently by Miller.[23] He proposed that in severe childhood illness, family and child look to the physician to fulfill an important psychologic function in the child's development and the adjustment of the family to the disease. A frequent consequence of severe disability in a child is social isolation, as the family withdraws from extradomestic activities and as neighbors, friends and sometimes kin avoid contacts with the family. In this restricted social context, the physician fulfills important functions of providing information and emotional support and strengthening positive patterns of family relationships and child-rearing practices.

The excess impact of continuity of physician on the evaluations that families of disabled children made of their doctors and medical care may reflect the greater psychologic needs these families bring with them to their doctors, compared with families of normal children. A doctor–patient relationship conducive to the expression of psychologic needs and their resolution is more critical for these patients than for patients with self-limiting illnesses. To the extent that continuity of physician promotes such doctor–patient relationships, it would indeed be more highly valued by families of disabled children than by families with children free of disabilities.

The findings of this study have important implications for the organization of medical care in specialty clinics. The entire sample of disabled children was drawn from the case loads of four specialty clinics, representing a variety of types of specialty medical care. Two of the clinics provide to their patients a full range of medical services, those connected with the disability as well as all immunizations and care for intercurrent childhood illness. The third clinic focuses only on the disability, its neurologic and orthopedic diagnosis and management, whereas in the fourth, although staff neither administer immunizations nor provide care for intercurrent illness, the concern with the disability includes its developmental consequences. The clinics vary also in the extent to which the care they provide is continuous. In one clinic, each physician–specialist has a distinct case load and is available to patients on any day of the week. Continuity of physician is at a high level at this clinic, far higher than at the other clinics in which similar arrangements to assure continuity have not been instituted. In two of these clinics, arrangements for continuity would have required intricate coordination, since they involved large teams of specialists from many fields. These latter clinics are examples of a growing number of subspecialty clinics providing technically advanced medical care to children with chronic illness or disabilities. The findings that continuity of physician had a far greater impact on the attitudes of patients of specialty clinics than on patients who receive care in primary care settings calls attention to the organizational conditions that characterize these clinics. Continuity of physician in these clinics is not a natural consequence of their organizational structure, work schedules and staffing. To secure continuity, new work arrangements are required. The technical benefits to be derived from the involvement of an array of specialists must be weighed against the costs of discontinuity. In the eyes of the disabled patients and their families, continuous care is not only a demonstration of doctors' concern, but also of the quality of care they provide.

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Appendix

The Three Subscales From the Patient Satisfaction Questionnaire Used as Dependent Variables

Quality of Care

Doctors aren't as thorough as they should be.

Most people are encouraged to get a yearly exam when they go for medical care.

Sometimes doctors take unnecessary risks in treating their patients.

Doctors are very careful to check everything when examining their patients.

Doctors ask what foods patients eat and explain why certain foods are best.
The medical problems my child had in the past are ignored when we seek medical care for a new medical problem.
Doctors don't advise patients about ways to avoid illness or injury.

Humaneness of Doctors

Doctors always do their best to keep the patient from worrying.
Doctors always treat their patients with respect.
Sometimes doctors make the patient feel foolish.
Doctors always avoid unnecessary patient expense.
Doctors cause people to worry a lot because they don't explain medical problems to the patients.
Doctors respect their patients' feelings.
Doctors never recommend surgery (an operation) unless there is no other way to solve the problem.
Doctors hardly ever explain the patient's medical problems to him/her.

General Satisfaction–Dissatisfaction

I'm very satisfied with the medical care my child receives.
The care my child has received from doctors in the last few years is just about perfect.
Most people receive medical care that could be better.
There are things about the medical care my child receives that could be better.

Continuity of Care

My child hardly ever sees the same doctor when he/she goes for medical care.
If more than one family member needs medical care, we have to go to different doctors.
My child sees the same doctor just about every time he/she goes for medical care.

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Distress Syndromes, Illness Behavior, Access to Care and Medical Utilization in a Defined Population

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This article examines the use of general medical services in a representative sample from a defined geographic area and in a sample of persons seeking psychiatric care from the same area. Psychiatric patients made 100 per cent more general medical care visits in the retrospective period and 83 per cent more in the prospective period than persons who did not seek mental health care. The analysis focuses on the determinants in general medical care use between those who sought mental health care and those who did not. The first hypothesis is that physical symptoms and dysfunction concomitant with psychologic disorder explain the difference. The second argues that the association is a product of help-seeking orientations and illness behavior. The third focuses on variations due to differences in access. The first two types of factors are the most important. Using sex, physical symptoms and illness behavior measures, we explain 50 per cent of the differences in retrospective utilization and 40 per cent of the differences in prospective data.

WITH GROWING INTEREST in the relationship between general care and mental health,[1] attention has been refocused on the associations between psychiatric and physical morbidity and related help-seeking. From a policy perspective, there is interest in various studies suggesting that the provision of psychologic services reduces demands on the medical care system, and on the use of costly and possibly dangerous interventions.[2–3] Since the general medical sector is the major source of care for persons with psychologic problems and since such persons use a disproportionate amount of service, the indications that psychologic management of such persons reduces utilization are of major policy interest.

The literature on the relationship between psychologic morbidity and general medical utilization, however, is more uncertain than the results of such studies might indicate. All existing studies have major selection biases affecting which distressed persons receive psychologic management, making it difficult to interpret the significance of the utilization reduction. There is also a sizable literature on medical

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utilization indicating that patients receiving psychiatric treatment, as compared with those who do not, have higher levels of medical care utilization.[4-5] Given the importance of correct interpretation for policy decisions, as well as for understanding, we cannot simply dismiss the contradictions apparent in these two areas of literature.

The research literature referred to above supports the following general conclusions: 1) there is an association between reports of psychologic and physical distress, and persons with psychologic distress feel sicker and subjectively rate their physical health as less adequate[6]; 2) physical symptoms and psychologic distress both independently contribute to seeking general medical care[7]; 3) patients in psychiatric treatment use medical care of all kinds more frequently than those not receiving such care[4]; and 4) in some settings the provision of psychologic management is related to a reduction of medical utilization.[2]

These findings are amenable to alternative interpretations. The purpose of the present study was to examine in a defined population how patient status, distress, access to care and other variables are related to retrospective and prospective medical utilization (excluding psychiatric care).

The Research Setting

In 1977, we initiated a study of persons in north central Wisconsin who were served predominantly by a large multispecialty group practice and satellite clinics. Analyses presented here are based on two samples drawn from a defined area with a population of approximately 50,000§: 1) a representative sample of 1,026 persons 18 years of age or over in the population; and 2) a consecutive sample of 91 patients coming to the psychiatry department of the clinic for mental health services.[‖] Eligibility for the second sample—referred to as the psychiatry sample—was based on four criteria: the patient had to 1) reside in the population area from which we drew our representative community sample; 2) be over 18 years of age; 3) have no record of consulting the psychiatric clinic in the previous 30 days; and 4) have a scheduled appointment of more than 15 minutes. The latter two criteria were used to define new episodes,# with the 15-minute criterion used to eliminate routine medication checks. We also excluded patients coming directly to obesity, smoking and alcoholism clinics administered by the psychiatric department. In both samples, respondents were interviewed in their homes and asked to complete a questionnaire and return it by mail following the interview. These data were then merged with retrospective and prospective data from respondents' medical and pharmacy records.

Measures of Psychologic Distress

Our data include a large number of scales of psychologic distress intended to

§ Because we did not use a simple random sample, in some cases our calculations may slightly overestimate the p-values of significance tests.

‖ Psychiatric patients were concerned with confidentiality, and twenty-eight patients asked not to be included in the study. Because such a high refusal rate could bias our results, we compared our sample with those who did not participate in the study to see how they differed on a variety of dimensions. There were no significant differences between our sample and those who refused to participate in presenting diagnosis, number of visits to the psychiatry department over a two-year period, mean age, marital status or sex. These two groups did differ with respect to past psychiatric history. Eight per cent of our sample had been hospitalized prior to the study for a psychiatric problem in contrast to 43 per cent of those who refused to participate. It appears that the patients we lost had either more severe or more chronic conditions than those included in the sample.

Twenty-three of the patients in our psychiatric sample had indications in their charts that they had sought psychiatric care at some time in the past. We examined how these patients differed from patients without prior episodes on 50 variables, and the only statistically significant difference was that those with a prior episode had slightly less educatio.

measure varying types of psychopathology and expression patterns. In fact, these tend to be highly intercorrelated, and, thus, we focus on only six summary measures. The first, based on measures developed by Dohrenwend, which he calls *demoralization*,[8] is a summary score based on eight symptom scales most highly intercorrelated in Dohrenwend's PERI (Psychiatric Epidemiology Research Interview) questionnaire. The eight scales are self-esteem, hopelessness, dread, confused thinking, sadness, anxiety, psychophysiologic symptoms and perceived physical health. Scale construction followed Dohrenwend's procedures with slight modifications.

The second measure was a 22-item Langner scale.[9] The version used in this study was scored such that it had a range of 22 to 110[¶] and in the representative sample had an internal consistency (coefficient Alpha) of 0.87. The third measure was a Distress Summary Score (I), based on 17 scales, most adapted from Dohrenwend, measuring drinking problems, psychophysiologic symptoms, problems that are possibly psychogenetic, neurotic problems, obsessive symptoms, guilt, suicide-scale, enervation, anxiety, sadness, hopelessness and fears. Each scale was standardized, and these standardized scale scores were summated. A second Distress Summary Score (II) was constructed in a similar fashion, eliminating items from five scales (psychophysiologic, possible psychogenic, sleep problems, anxiety and enervation). The purpose of this fourth scale was to have a general psychologic distress indicator unconfounded by physical or psychophysiologic content. Two additional scales included in the analysis were the Eysenck Neuroticism Scale (coefficient Alpha = 0.55) and a Depression Scale composed of four previously mentioned scales (guilt, sadness, hopelessness and suicide). These six scales achieve adequate levels or reliability,** and have been found to be related to levels of functioning and illness behavior.

We examined the intercorrelations among these five measures for the cross-sectional and psychiatric samples (Table 1). These measures share many of the same items, and thus high intercorrelations are expected. With the exception of the

[¶] For each item in the Langner scale, respondents were asked whether they had experienced that symptom very often, fairly often, sometimes, almost never or never in the prior three months. The responses to these items, which were scored as 5, 4, 3, 2 or 1, were then summed to form the Langner score.

** The internal consistencies (coefficient Alpha) for the components of the various summary measures are: self-esteem (0.72), hopelessness (0.78), dread/fear (0.43), confused thinking (0.79), sadness (0.81), anxiety (0.82), psychophysiologic symptoms (0.52), perceived physical health (0.45), drinking problems (0.77), manic behavior (0.56), delusions (0.52), explosiveness (0.72), sleep problems (0.63), possible psychogenic problems (0.60), neurotic problems (0.69), obsessive symptoms (0.70), guilt (0.75), suicide-scale (0.73), enervation (0.75).

TABLE 1. Correlations Between Distress Indicators
Psychiatric Sample (N = 91) Above Diagonal
Area Probability Sample (N = 1,026) Below Diagonal, Pairwise Deletion Used

	1	2	3	4	5	6
1. Demoralization	—	.93	.94	.86	.60	.81
2. Langner	.91	—	.89	.76	.63	.66
3. Distress summary I	.93	.90	—	.96	.60	.86
4. Distress summary II (psychologic)	.87	.80	.97	—	.55	.92
5. Eysenck	.58	.59	.56	.51	—	.45
6. Depression scale	.88	.78	.89	.90	.52	—

TABLE 4. Regressions of Satisfaction Scales on Group, Continuity and Group × Continuity, Controlling for Education, Income, Race and Waiting (n = 828) (unstandardized regression coefficients: standard errors in parentheses)

Dependent Variables	Independent Variables								
	Education (b_1)	Income (b_2)	Race (b_3)	Waiting (b_4)	Group (b_5)	Continuity (b_6)	Continuity × Group (b_7)	Constant (a)	R^2
Quality	0.016 (0.060)	−0.015 (0.010)	0.246 (0.191)	0.947* (0.111)	−1.165 (1.248)	0.307* (0.087)	0.232* (0.117)	11.652	0.187
Humaneness	−0.063 (0.073)	−0.004 (0.012)	0.394 (0.232)	1.367* (0.135)	−4.066* (1.518)	0.371* (0.106)	0.579* (0.143)	13.042	0.266
General Satisfaction	−0.020 (0.041)	−0.007 (0.007)	0.093 (0.136)	0.833* (0.077)	−2.624* (0.863)	0.197* (0.060)	0.288* (0.081)	6.840	0.249

* Coefficient exceeds twice its standard error.

addition of the three sociodemographic factors and Waiting to the model increased the predicted variance in satisfaction with Quality from 11 to 19 per cent, with Humaneness from 17 to 27 per cent and in General Satisfaction from 14 to 25 per cent (compare columns headed R^2 in Tables 2 and 4). Since the combined contribution of education, income and race was less than 1 per cent in each of the three regressions, the additions in explained variance were due almost entirely to waiting time. In spite of the strength of waiting time as a predictor of satisfaction, controlling for its effects did not alter the general results described above. Regression coefficients for the interaction term, b_7 in this model, were all statistically significant. Those for continuity in the SCHC, b_6 in this model, remained also statistically significant. Table 5 presents the regressions for continuity in the two groups, calculated from the overall regressions in Table 4, in which education, income, race and waiting time were controlled. The effects of controlling these variables on the strength of the relationship between continuity and patient satisfaction can be assessed by comparing the regression coefficients in Table 5 with those in Table 3. All the regression coefficients of continuity were somewhat lower when waiting time and the three sociodemographic factors were held fixed. However, the initial results in regard to the relative magnitudes of the impact of continuity in the two groups remained unchanged. The weight of continuity in producing satisfaction with Humaneness in the SCWD was more than two and a half times as large as it was in the SCHC. In General Satisfaction, the ratio of the coefficients for continuity in the two samples was also greater than 2 to 1. In satisfaction with Quality the ratio was 1.7 to 1. There was also little change in the relationship between corresponding intercepts and in the value of continuity at the point of intersection of corresponding regression lines.

Eysenck Neuroticism score, which is correlated 0.5 to 0.6 with the other measures, the remaining measures are very highly correlated in both the cross-sectional (0.8 to 0.9) and psychiatric (0.6 to 0.9) samples suggesting that it probably does not matter a great deal which is used. Eliminating anxiety, psychophysiologic concerns and physical symptom items from the distress summary score had little effect on how this score was correlated with other measures, and the two distress summary scores were correlated 0.97 in the sample of the general population and 0.96 in the psychiatric sample.

The samples were divided into the following groups: I—patients who came to the clinic for psychiatric care (the psychiatric sample); II—respondents in the cross-sectional sample whose medical records revealed a visit to a psychiatrist during the two-year interval in which we reviewed charts; III—those in the cross-sectional sample who had no record of psychiatric visits but who reported visiting a psychiatrist, psychologist, social worker or mental health center for a personal problem in the past year in the interview; and IV—those in the cross-sectional sample with no indication of mental health care. The treated samples had substantially higher scores on each of the six distress indicators, with the psychiatric sample scoring highest on each of the indicators (Table 2).††

†† Utilization data, of course, were obtained only for respondents who gave legal consent for such access (89 per cent of the cross-sectional sample). To simplify comparisons, all subsequent analyses are based only on the respondents for whom we have medical record data. Those who did not consent to have their records reviewed were compared with those who did and were found to be slightly older, less educated and with lower incomes than those who gave consent. In addition, they were lower on some of the measures of psychologic distress; were less likely to be involved in clubs and social activities; and were less likely to respond that they trusted their physician, that they felt comfortable in discussing emotional problems with him or that they had friends who had used a psychiatrist. In general, the differences were relatively small and are not likely to greatly influence inferences made from the data because of the high response rate.

TABLE 2. Mean Scores of Four Groups on Indicators of Distress* (Standard Deviations in Parentheses)

	Cross-Sectional Sample of Population (Excluding Users of Mental Health Services)	Cross-Sectional Respondents with Psychiatric Record	Cross-Sectional Respondents Who Reported Using Mental Health Services	Psychiatric Sample
	(N = 842)	(N = 42)	(N = 28)	(N = 91)
1. Langner score	81 (9.6)	88 (11.1)	88 (11.1)	95 (13.4)
2. Depression scale	58 (8.6)	64 (9.7)	67 (15.8)	75 (14.0)
3. Distress summary score I	−0.41 (10.3)	7.8 (12.2)	8.7 (14.7)	14.9 (13.7)
4. Distress summary score II	−0.24 (7.5)	4.9 (8.3)	5.9 (11.7)	10.1 (9.6)
5. Demoralization score mean	5.2 (3.4)	7.8 (4.0)	7.8 (4.4)	10.6 (5.1)
6. Eysenck neuroticism score mean	1.9 (1.4)	2.7 (1.4)	2.8 (1.8)	3.1 (1.6)

* For all scales, higher scores correspond to higher symptom levels.

Patient Status and Utilization

Medical records were examined for every medical provider named by respondents during the interviews, and we also examined the records of virtually all medical providers in the geographic area to ascertain whether our sample had used services without reporting such utilization. Patients who sought psychiatric care had higher levels of general medical utilization for both the retrospective and prospective periods (Table 3). For example, while nonusers of mental health services had visit rates of 2.6 and 2.4 medical visits for the retrospective and prospective periods, the rates for the psychiatric sample were 5.2 and 4.4, respectively. These differences were only slightly altered when adjusted for differences in age, sex and education among the samples.‡‡

‡‡ Although our analyses focuses on use of outpatient services, people in the psychiatric sample were also likely to be hospitalized. Nonusers of mental health services had an average of 0.10 and 0.11 hospital admissions for the retrospective and prospective periods, while the rates for the psychiatric sample were 0.23 and 0.15, respectively.

Unlike that in much of the existing literature, the definition of patient status in our study is independent of medical utilization and precedes the measurement of utilization in the case of the prospective data. While the results here are consistent with other studies, the reasons for these findings remain unclear. There are at least three major competing explanations: that medical utilization is a result of physical symptomatology concomitant with psychologic symptomatology; that use of both mental health and general medical services reflect generalized tendencies to seek help or related illness behavior; and that rates of high use of both types of service reflect overall access to both as indicated by method of payment for service and the accessibility of care.

As the first step in exploring alternative explanations, we compared the psychiatric, the cross-sectional respondents receiving mental health care (i.e., reported using mental health services and/or had a psychiatric visit in record), and the cross-sectional sample members who did not receive mental health care with respect to

TABLE 3. Mean Scores on Retrospective and Prospective Medical Care Utilization (Excluding Mental Health) (Standard Deviations in Parentheses)

	Cross-Sectional Sample of Population (Excluding Users of Mental Health Services)	Cross-Sectional Respondents with Psychiatric Record	Cross-Sectional Respondents Who Reported Using Mental Health Services	Psychiatric Sample
	(N = 842)	(N = 42)	(N = 28)	(N = 91)
Retrospective				
Medical utilization mean visits for year prior to interview	2.6	3.3	4.0	5.2
(Standard deviation)	(3.5)	3.9)	(3.5)	(5.1)
Per cent 3 or more medical visits	35	48	61	57
Prospective				
Medical utilization mean visits for year following interview	2.4	3.8	3.8	4.4
(Standard deviation)	(3.6)	(4.0)	(3.1)	(4.9)
Per cent 3 or more medical visits	31	55	57	58

five measures of physical functioning, five measures of help-seeking and six measures of access to medical care (Table 4). The physical measures included a two-item subjective assessment of physical condition, a scale of six psychophysiologic symptoms, a scale of nine physical symptoms that are possibly psychogenic, reported number of chronic health conditions, and a measure of bed and hospital disability.§§ Help-seeking measures included three hypothetical scales of tendency to consult physicians (in the case of physical symptoms, in the case of psychologic symptoms and total combined scores), the patient's report of the importance of physical checkups and the patient's acknowledgment that it is appropriate to talk to doctors about personal problems. Access-to-care measures included whether the patient was a member of the prepaid plan, whether the patient reported having a personal doctor, whether the patient could name a specific doctor, convenience in getting to the doctor, difficulty getting an appointment and the reported

§§ The psychophysiologic symptoms asked about were: poor appetite, constipation, headaches, cold sweats, trembling hands and acid stomach. The possible psychogenic symptoms were: dizziness, fainting spells, heart beating hard, chest pains, shortness of breath, high blood pressure, asthma, diarrhea and weight change without being on a diet. The chronic conditions asked about were: asthma, chronic bronchitis, sinus trouble, rheumatic fever, hardening of the arteries, high blood pressure, heart trouble, stroke, varicose veins, hemorrhoids or piles, hay fever, gall bladder or liver trouble, stomach ulcer, stomach problems, kidney trouble, arthritis, diabetes, thyroid trouble or goiter, allergy, epilepsy, cancer, skin trouble, hernia or rupture, prostate or urinary problems, tremors, paralysis and chronic back problems.

TABLE 4. Mean Scores on Measures Reflecting Alternative Hypotheses Accounting for Utilization Differences

	Cross-Sectional Sample		
	Non-Mental Health Users	Mental Health Users	Psychiatric Sample
	(N = 842)	(N = 70)	(N = 91)
Hypothesis 1—Physical Morbidity			
Perception of Physical Condition	5.1	5.5	5.6*
Psychophysiologic symptoms	20.5	21.6	22.8*
Possible psychogenic symptoms	29.1	30.6	31.3*
Number of chronic health conditions	2.6	3.4	3.7*
Bed and hospital disability	0.5	0.7	0.9*
Hypothesis 2—Help-Seeking Tendencies			
Tendency to consult doctor–total	4.3	5.1	4.2*
Tendency to consult doctor–psychologic	0.4	0.5	0.5*
Tendency to consult doctor–physical	4.0	4.6	3.7*
Thinks it important to have checkups	6.1	6.5	7.0*
Thinks it appropriate to talk to doctor about personal problems	2.5	2.8	3.0*
Hypothesis 3—Access to Care			
Proportion naming an individual doctor	0.6	0.7	0.6
Proportion in prepaid group	0.4	0.5	0.7
Has no personal doctor for overall health needs	1.5	1.3	1.4
Inconvenient to get to doctor	1.2	1.2	1.3
Days wait for appointment	23.0	22.3	17.8
Difficulty getting appointment	1.4	1.2	1.4

* One-way analysis of variance among the three groups significant at the 0.05 level.

number of days to get an appointment. Each of the physical morbidity and help-seeking measures significantly differentiated the samples, with the psychiatric sample being highest on almost all measures and the cross-sectional respondents who received no mental health care being lowest. The only exception to this pattern was that reported mental health services users had the highest tendency to consult a physician for physical reasons and scored highest on the combined scale of tendency to consult physicians. There were no statistically significant differences among the samples in access to care.

Next, we examined the extent to which age, education and sex differences across the groups explained the utilization patterns. Only sex was a significant predictor of use, with women using more services. The unadjusted differences in medical utilization for one year between the psychiatric sample and the cross-sectional sample members who did not use mental health services was 2.6 visits in the retrospective period and two visits in the prospective period. In other words, the excess of medical visits in the psychiatric sample compared with the cross-sectional non-mental health help seekers was 100 per cent for retrospective data and 83 per cent for prospective data. Adjusting for sex differences among samples reduces the medical utilization differences to 2.3 visits for retrospective data and 1.8 visits for prospective data (Tables 5 and 6).[10]

[10] All adjusted means were calculated using analysis of the covariance on the combined, unweighted groups. This procedure assumes that the relationship between the covariates and the dependent variables are the same in each group, an assumption difficult to test with such small groups.

TABLE 5. Medical Utilization Among Groups Controlling for Sex, Illness Behavior and Physical Symptoms

	Cross-Sectional Sample		
	Non-Mental Health Users	Mental Health Users	Psychiatric Sample
	(N = 842)	(N = 70)	(N = 91)
Unadjusted medical care utilization			
Retrospective	2.6	3.6	5.2
Prospective	2.4	3.8	4.4
Medical care utilization adjusted for sex			
Retrospective	2.6	3.5	4.9
Prospective	2.5	3.7	4.3
Medical care utilization adjusted for five physical symptom measures			
Retrospective	2.7	3.2	4.4
Prospective	2.5	3.5	4.0
Medical care utilization adjusted for illness behavior measures			
Retrospective	2.8	3.4	4.6
Prospective	2.6	3.6	4.3
Medical care utilization adjusted for sex and significant physical symptoms* and illness behavior measures			
Retrospective	2.9	3.3	4.2
Prospective	2.7	3.3	3.9

* In retrospective analysis, scale of "symptoms possibly psychogenic" was used; in prospective analysis, perceived physical status was used.

TABLE 6. Differences in Mean Medical Care Utilization Between Cross-Sectional Sample Who Are Nonusers of Mental Health Services and Psychiatric Sample

	Retrospective	Prospective
Unadjusted difference	2.6	2.0
Adjusted by sex	2.3	1.8
Adjusted by physical measures	1.7	1.5
Adjusted by illness behavior measures	1.8	1.7
Adjusted by sex, physical measures and illness behavior	1.3	1.2

We suggested three hypotheses that may account for differences in utilization among these samples: the first explanation accounts for the differences on the basis of magnitude of physical symptoms accompanying psychologic disorder, the second on the basis of differential help-seeking tendencies and the third on the basis of access. Because there were no significant differences among the groups in access, we focused on the first two hypotheses. Thus, we separately adjusted medical utilization rates among the samples by the five physical and psychophysiologic illness scales that differentiated these groups and by the four illness behavior measures on which the groups varied. Controlling for the physical symptom measures reduces the difference of 2.6 visits for retrospective data and two visits for prospective data to 1.7 and 1.5, reductions of 35 per cent and 25 per cent, respectively. Controlling for illness behavior measures reduces the differences to 1.8 and 1.7 visits, reductions of 31 per cent and 15 per cent, respectively. Next, we constructed regression equations to correct utilization for the best combination of significant predictors. In the case of retrospective utilization, four variables—sex, a scale of psysiologic symptoms that could be psychogenic, a measure of bed disability–hospital days, and a measure of the respondent's belief in having regular checkups even when feeling well—reduced group differences for retrospective data to 1.3 visits, a reduction of 50 per cent. Similarly, four predictors—sex, perceived health, bed disability–hospital days, and the respondent's belief in having regular checkups—reduced the prospective difference to 1.2 visits, a reduction of 40 per cent (Table 6).

Concomitant Physical and Psychologic Morbidity

The fact that reported physical morbidity is the best discriminator between users and nonusers of psychiatric facilities suggests that it is important to investigate the link between physical and psychologic morbidity. Our study was not designed to investigate this relationship, but by examining the types of physical conditions differentiating the two groups, we can better understand why physical morbidity is predictive of psychiatric use. There are at least four general hypotheses that can account for the association between physical and mental health: 1) certain people are constitutionally resistant or vulnerable to both physical and mental health problems; 2) psychologic distress may be an etiologic factor in certain physical diseases; 3) the effects of physical disease may lead to or exacerbate the development of psychologic problems; or 4) particular persons may be more sensitive to or aware of both physical and mental states. To investigate the relative plausibility of these different explanations, we examined all the items included in the physical morbidity

indices and examined which particular conditions best accounted for the higher distress scores among psychiatric users. With few exceptions, users of the psychiatric clinic were more likely than nonusers in the cross-sectional sample to report psychophysiologic and psychogenic symptoms. The only symptoms psychiatric clinic users did not report significantly more frequently were constipation, high blood pressure and asthma attacks. There was virtually no difference between the two groups in reported frequency of constipation ($p = 0.47$) or high blood pressure ($p = 0.65$), but the difference in reported frequency of asthma was in the expected direction and approached statistical significance ($p = 0.08$). Psychiatric clinic users were also more likely to report numerous ailments, poorer perceived health, and more bed and hospital disability. When chronic health conditions were examined, however, there were significant differences for only eight of the 27 conditions. Those reported significantly more frequently by the psychiatric patients were asthma, repeated attacks of sinus problems, stomach ulcer and other chronic stomach problems, allergies, prostate trouble or repeated urinary tract infections, tremor or shaking, and repeated troubles with back or spine.

These results are at best suggestive, but it is notable that with the exception of prostate trouble and repeated urinary tract infections, all the chronic conditions reported more frequently by patients in the psychiatric sample are conditions frequently viewed as having a psychogenic component. This is not true of most of the conditions for which the groups did not differ.

These findings are consistent with two of the hypotheses mentioned previously: that psychologic factors may be etiologic factors in certain diseases, and that certain persons may be more attentive to both their mental and physical condition. For all the chronic conditions more prevalent in the psychiatric sample, with the exception of prostate and urinary tract problems, one could reasonably argue that either 1) stress could lead to or exacerbate the problem, or 2) that it is the type of condition that would be more likely to be noticed and reported if a person was more sensitive and attentive to his/her physical state. On the other hand, none of the severely disabling conditions, such as stroke, arthritis, diabetes, cancer and paralysis, which might be expected to result in despair or depression, was significantly more prevalent among the users of the psychiatric clinic. It is becoming increasingly recognized that the linkage between physical and mental health is a complex and important one. Understanding the utilization patterns of persons with psychiatric problems will require careful analysis of the occurrence of symptoms.

Multivariate Analyses Within Samples

All of the analyses, thus far, have been confined to differences between groups. As part of our analysis, we also examined factors affecting utilization within the cross-sectional samples of mental health help-seekers and non-help seekers, and within the psychiatric sample. Because the mental health help-seeking samples are small, very few predictors achieve statistical significance, and the only factors we could identify within the psychiatric sample and the help-seeking cross-sectional sample that accounted for differences in medical utilization were measures of health perceptions and disability.

In the case of cross-sectional respondents who did not seek mental health services, significant predictors of use of medical care were access to care, illness behavior and physical symptoms. Whether the respondent is in a prepayment plan, can identify an individual personal doctor and reports little difficulty in getting an appointment help explain medical utiliza-

tion. These three predictors account for 5 per cent of utilization in the retrospective data, and the first two predictors account for 2 per cent of utilization in the prospective data.

On the assumption that access to care enables people to use services who wish them (either because they have symptoms or particular illness behavior patterns), we entered the three access variables mentioned above as fixed predictors and then examined what combination of physical illness measures and illness behavior measures yielded the best predictors of variations in medical utilization. In the case of prior utilization, the access measures—reported bed-disability days and belief in the importance of regular checkups—accounted for 15 per cent of variation in utilization. The best predictor was reported bed–disability. We were less successful in predicting prospective medical utilization. Membership in a prepaid plan, identifying a personal physician, reported bed–disability days and subjective assessment of physical condition accounted for 6 per cent of variation in utilization (Table 7).

As noted in the introduction, a central issue in the study of medical care use has been whether providing psychologic services reduces the utilization of other medical services by distressed patients. One hypothesis is that high utilization rates may reflect, in part, help seeking for psychologic problems, and if psychologic services are provided they will be "offset" by a corresponding reduction in medical care use. Although our data were not collected to address this issue, by comparing the utilization patterns of distressed patients who used the psychiatric clinic with those of patients in the population sample with comparable levels of distress, we can get some indication as to whether an offset has occurred among the users of the psychiatric clinic.

Because one would expect the impact of psychiatric services to be greatest for those patients who are most distressed, we analyzed utilization patterns among those patients with a demoralization score that

TABLE 7. Regression Models of Medical Care Utilization in the Cross-Sectional Sample

	Retrospective (beta)	Prospective (beta)
Model 1—Access		
Not in prepaid plan	−0.13*	−0.10*
Does not name a regular doctor	−0.13*	−0.08*
Difficulty getting an appointment	−0.09*	
R^2	0.05	0.02
Model 2—Access, Illness Behavior and Physical Symptoms		
Fixed variables		
Not in a prepaid plan	−0.11*	−0.09*
Does not name a regular doctor	−0.04	−0.05
Difficulty getting an appointment	−0.07	
Second step		
Bed–hospital days	0.29*	0.16*
Says regular checkups important	0.12*	
Poor subjective physical condition		0.12*
R^2	0.15	0.06

* $p < .05$.

was above the 90th percentile of the general population sample. Thus, the figures reported are based on 46 people from the sample of psychiatric clinic users and 76 people from the population sample who had demoralization scores above this criterion. Among these people, the change in utilization rates over the period of the study supports the offset hypothesis; the utilization of distressed people who did not use psychologic services increased from 3.04 visits per year (in the year prior to the interview) to 3.25 visits per year (in the year subsequent to the interview), while medical care use among distressed persons from the sample of psychiatric clinic users decreased from 5.54 visits per year to 4.57 visits per year. However, neither of these differences nor the contrast of these differences was statistically significant. In addition, there are several limitations of the data that must be kept in mind when interpreting these results. First, we have no way of determining if any of the medical care visits by people in the psychiatric sample were solely for the purpose of obtaining a referral to the psychiatric clinic. Thus, the decrease of less than one visit per year among psychiatric clinic users might partially be accounted for by a referral visit in the year preceding the interview. A second problem is one common to almost all studies addressing the offset question: the sample of psychiatric clinic users is a self-selected sample. Presumably, the persons who seek psychiatric care are most likely to do so at a time when their need for help is greatest. Consequently, one would expect that their use of nonpsychiatric services would also be highest preceding such a visit. Even if there were no treatment effects, one would expect some reduction of both distress and help-seeking behavior (both psychiatric and nonpsychiatric). In short, although there is some indication of an offset effect among patients receiving psychiatric care, this effect, even if free of methodologic ambiguities, would be trivial in comparison with the excess medical utilization of psychiatric patients as compared with patients who are not in psychiatric care.

Discussion

In short, we have been able to explain almost half of the differences in medical utilization among groups who are mental health care seekers and nonusers of mental health services. We have confirmed, using independent records and on a prospective basis, that users of mental health services also use substantially more general medical services. Such differences are in part due to physical symptoms and disorder concomitant with psychologic disorder and higher illness behavior propensities. Physical symptoms and disability appear to have more impact on utilization than differences in illness behavior.

A surprising finding in the cross-sectional sample was that psychologic distress as measured by various screening scales had only a very modest relationship to retrospective and prospective medical utilization. While such relationships are significant at the zero-order level, they are not significant when controls are introduced for access, physical symptoms and illness behavior. The weak impact of distress on utilization relative to some other studies may reflect the special characteristics of this rural population. The population studied appears to be a highly stoical, self-reliant group, many of Northern European and Scandinavian backgrounds. In the United States in 1977, there were 3.3 visits per person to a doctor's office, clinic or group practice, and 3.2 visits in the north central states and outside Standard Metropolitan Statistical Areas.[10] In contrast, our cross-sectional sample had 2.4 visits for the prospective period and 2.6 visits for the retrospective period. It is plausible that distress as a determinant of general medical services is more substantial in situa-

tions in which medical care is defined broadly and in which discretionary use is more consistent with cultural patterns in the population.

The data presented here are not consistent with a growing literature suggesting that psychiatric intervention among distressed persons results in reduced medical utilization. Persons receiving mental health services had considerably higher medical utilization for both the retrospective year and for the year following contact with psychiatric services. It is possible that medical utilization for these patients will show a reduction in subsequent years. There are many reasons to assist psychologically distressed persons. Whether reduction in medical utilization occurs has not been firmly established, and studies demonstrating this effect have significant methodologic limitations.

In sum, there are at least three general interpretations for the high rates of medical utilization among patients who receive psychiatric services: that the link is due to the interrelationships between psychologic symptoms and physical symptoms; that it reflects high generalized help-seeking propensities; and that it reflects broader access to both medical and psychiatric services. Although we find some evidence in support of each of these interpretations, the explanation that is most powerful is that high medical utilization among patients receiving mental health services is a product of physical symptoms and discomfort concomitant with psychologic disorder.

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Psychological Distress and Patient Satisfaction

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Psychologically distressed patients and clients of health care and social service organizations are found to report somewhat more dissatisfaction with services than do the nondistressed. Four explanations for this relationship are examined: 1) the psychologically distressed are generally dissatisfied; 2) service providers react negatively to the psychologically distressed; 3) psychologically distressed patients are dissatisfied when service providers do not respond to their psychological needs; and 4) patients who deny their psychological distress tend to be dissatisfied. The results show that the psychologically distressed report more dissatisfaction because of the very high levels of dissatisfaction found among patients who deny having personal problems.

PERSONS EXPERIENCING higher levels of psychological distress are often thought to be generally less satisfied with medical and related health and social sevices. Reports from medical, rehabilitation, psychological and social welfare settings suggest that attempts to help persons with psychological problems are often difficult and have negative outcomes. Higher levels of psychological distress have been associated with negative provider–client interaction,[1–5] dropping out of treatment programs,[6] poor compliance and refractoriness to treatment in general,[3,7,8] postoperative complications[9] and lengthy convalescence.[10] Despite these numerous accounts linking psychological distress to negative provider–client interaction, recent reviews of patient satisfaction studies show no empirical research linking psychological distress specifically with patient dissatisfaction.[11,12]

Increasing our understanding of the relationship between patient satisfaction and psychological distress may help us better understand why psychologically distressed patients experience such a wide variety of other negative outcomes. Patient satisfaction is, of course, important in its own right, especially in this era of increasing consumerism in medicine.[13]

Despite numerous suggestions and informal observations linking psychological distress to patient dissatisfaction, to our knowledge no prior empirical research has focused specifically on a patient's

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psychological distress and satisfaction with service. This article presents research demonstrating that psychologically distressed persons are more dissatisfied in a broad range of patient and client care settings.

Conceptual Background

Several general explanations for this relationship have been suggested in the literature, and these explanations serve to guide our exploration. First, the psychologically distressed are thought to be generally dissatisfied with their lives and experiences, and this is reflected in their assessments of health care and related services. For example, Coleman states that because of fear, anxiety, apprehensions and general life orientation, neurotics, in particular, are prone to be pessimistic and generally dissatisfied.[14] We will call this the "general-dissatisfaction hypothesis."

Second, helping professionals may respond in negative ways to psychologically distressed patients,[2,4,7,15] resulting in patient dissatisfaction. For example, Gunther observed professional rehabilitation staff to have distorted and nonemphatic attitudes toward psychologically distressed patients.[3] Paraprofessional staff with "moralistic" attitudes were observed to want to discipline and reform psychologically difficult patients. Patients with psychological problems may lead physicians to respond with anger, avoidance and frustration, and to refer negatively to them as "crocks" and "hypochondriacs."[1,2,4,7] As a result, psychologically distressed patients may be rejected for service or referred more often than nondistressed helpseekers. Even a well-intentioned referral may leave the patient feeling misunderstood, bitter, hostile, stigmatized or rejected.[16] We will call this the "negative-provider-reaction hypothesis."

Third, dissatisfaction may result from the perceived failure of nonpsychologically oriented professionals to respond to the psychological needs of the helpseeker.[17] Medical patients in particular are often seen as using a somatic presenting problem to legitimate a contact with a physician in which they covertly wish to discuss personal or emotional problems.[18] Patients with such "hidden agendas" may be frustrated and dissatisfied when their physician visit does not provide this opportunity.[2] Other patients and clients may overtly view their physical or social problems as having psychological or personal components, and these persons may be dissatisfied when they do not receive emotional guidance and support from professionals providing services for their physical or social problems.[19] Dissatisfaction, then, may result if the patient or client has overt or covert psychological needs that are not met by the helping professional. This may be called the "unmet-psychological-needs hypothesis."

Fourth, dissatisfaction may more likely be experienced by patients or clients who fail to recognize or deny emotional or personal problems as the source of their distress. Certain distressed individuals avoid defining psychological symptoms as evidence of their emotional or personal problems,[20,21] and externalize the causes of their symptoms and blame others as a defense mechanism,[22] protecting themselves in part from threats to self-esteem and intolerable inner conflicts.[23] Such patients, often said to have "underlying" psychological distress, may select inappropriate help sources, have unrealistic expectations about what a professional can do[1,2] and, particularly, be inclined to blame the provider when their expectations are not met.[3] Patients or clients with underlying or unacknowledged personal or emotional problems may for various reasons be more dissatisfied. We will call this the "denied-psychological-distress hypothesis."

There are certainly other possible hypotheses, but we focus on these because

they are the ones most commonly mentioned in the literature. We also recognize that the processes suggested by these four explanations may occur simultaneously and may interact in numerous complex ways. For example, patients or clients who deny or fail to recognize their psychological problems may also be particularly prone to invite negative provider reactions.[4,16] We will try to be sensitive to the possibility of such complex processes in our analysis and discussion, even though we cannot adequately test them all.

Analytic Strategy

Levels of patient dissatisfaction in various psychologically distressed and nondistressed subgroups will be compared to assess the explanatory hypotheses reviewed above. First, for the general-dissatisfaction hypothesis, if the psychologically distressed are generally negative, dissatisfied people, they are expected to express more dissatisfaction, regardless of whether they deny their distress or discuss it with the professional. Second, with regard to the negative-provider-reaction hypothesis, if dissatisfaction is a result of negative provider reactions, then dissatisfied patients should be those who most often experience rejection, referral or other negatively perceived outcomes. Third, for the unmet-psychological-needs hypothesis, if the dissatisfaction is a result of frustration of the psychologically distressed at not having their personal problems dealt with by the professional, then dissatisfaction should be concentrated among the psychologically distressed who, themselves, recognize their problems, but for some reason, do not discuss them with the professional. Fourth, concerning the denied-psychological-distress hypothesis, if dissatisfaction is a consequence of denial of personal and emotional problems, then dissatisfaction should be prominent among the psychologically distressed who report having no personal or emotional problems. Through these comparisons, the nature of the relationship between psychological distress and patient dissatisfaction can be specified to a greater degree.

Methods

Design and Sample

Personal interviews by professional interviewers were obtained with 366 patients and clients of ten health, rehabilitation and related social service agencies.[24] A representative sample of patients or clients seeking help for a new, not continuing or chronic problem were randomly sampled at each agency. An average of 75 percent of patients or clients initially approached consented to be interviewed for the study, and, of these, 75 per cent were successfully interviewed in their homes on an average of six weeks following their initial contact (overall response rate of 56 per cent). While reasons for nonresponse were varied, including inability to locate highly mobile students and others, institutional placement and severely deteriorated physical condition, most nonrespondents refused the interview. Respondents were asked about their sociodemographic characteristics, attitudes, help-seeking experiences, psychological symptoms and satisfaction with the service they had received. The number of respondents from each agency ranged from 26 in one small agency to 45 in two large medical facilities, with an average of 37 respondents per organization.

Over 100 formal help-giving organizations having four or more staff, excluding private practice settings, were identified in the metropolitan area of a medium sized midwestern city. Organizations providing direct service were purposely selected to provide a broad representation by size and type of service; 92 per cent of those invited participated in the study. One organization, a psychiatric inpatient service, was dropped from this analysis as inappropri-

ate, leaving ten organizations. Participating organizations included a general hospital, an adult primary care clinic, a specialty medical clinic, a specialized nursing care service, a public rehabilitation agency, a private rehabilitation agency, a religiously affiliated social service agency, a local public organization advising on specialized public benefits, a social work division of a public agency providing material assistance and a public employment agency. In this diverse group of organizations, persons seeking help are variously referred to as patients or clients, and the providers of service are professionals of different degrees. While for convenience sake, we will sometimes refer to respondents as either patients or clients and to the providers as professionals or not, the reader should remain aware of the diversity of the sample.

Measures

Three measures of satisfaction are used. Two of these are additive indices constructed from questions in which respondents indicated their degree of satisfaction on a 7-point scale ranging from "extremely satisfied" to "extremely dissatisfied." A "humaneness" index includes five items concerning courtesy and friendliness of staff, staff warmth and interest in the client, staff consideration for the patient's or client's feelings, respect accorded by staff and concern expressed by staff for the patient's or client's problem. A four-item "competence" index includes two questions on the general quality of service, one on the technical competence and training of staff, and one on the comprehensiveness of services provided. Cronbach's Alpha for these indices were 0.94 and 0.88, respectively. These indices represent two of the most salient dimensions of patient satisfaction, and patient satisfaction scales of this nature have been shown to be adequately valid and reliable.[11,12] In addition, a one-item rating of the general quality of service provided was used ["How satisfied are you with the general quality of the services you received from (organization)?"] Responses were on a 5-point scale ranging from "very satisfied" to "very dissatisfied."

For our purposes, psychological distress refers to the experience of psychological symptoms of which moderate depression and anxiety are the most common. It does not include experience of those severe symptoms indicative of psychotic states, and may or may not reflect a recognized psychiatric disorder.

To measure psychological distress, the Crandall and Dohrenwend ten-item psychological symptoms cluster of the Langner 22-item psychiatric screening index was used.[25] The Langner index is widely used as a measure of middle-range severity of persistent anxiety and depressive states.[26] The ten-item subindex identified by Crandall and Dohrenwend as indicative of "primarily psychological and rarely organic" problems was used in order to minimize confounds of the Langner index with physical symptoms,[27–29] common among our respondents. These items concern an inability to "get going," feeling apart even among friends, feeling that nothing turns out right, wondering if anything is worthwhile, nervousness, being a "worrying type," restlessness, trouble sleeping, being in low spirits and having a poor memory. An additive index was constructed in which respondents scored one point for each symptom they experienced "often" (Cronbach's Alpha for this index is 0.87).

While psychological distress was measured six weeks following the respondent's approach to the agency for help with the new problem, the Langner items used here measure a sufficiently stable type of psychological distress for this index to provide a satisfactory indicator of the patient's level of psychological distress at the time he or she visited the organization.[30] Test–retest Langner index scores correlate at greater than 0.5 over periods ranging from

two to four years,[30-32] and the Langner index correlates more strongly with measures of stable anxiety, neuroticism and depression than with measures of transitory anxiety.[33] In addition, a substantial percentage of the respondents reported still receiving help from the organization at the time of the interview. The only nonrandom bias due to the time lag, which we consider serious, consists of an exacerbation of psychological distress due to a worsening of the problems for which help was sought. To deal with this possibility, two control variables were introduced in all analyses, i.e., the reported degree of worsening of the presenting problem. ["In general, would you say the problem has entirely disappeared or has gotten better, somewhat better, no change, somewhat worse or much worse as a result of your contact with (organization)?] and the degree of worry about the presenting problems at the time of the interview [Since you have been in contact with (organization), are you worrying a great deal, somewhat, very little or not at all about your problem?]. Random fluctuations of psychological distress during the time lag would, of course, conservatively bias against finding any association of satisfaction and psychological distress. Thus, the reasonably short and variable average time lag between the respondent's initial contact with the organization and the interview is unlikely to bias the results.

Psychological distress that is chronic or persistent over periods of months or years may nevertheless provide a trigger or heightened propensity to seek services. Thus, the presence of relatively stable distress levels is consistent with the implication in certain of the alternative explanations that psychological distress may be either the overt or covert reason for which some people seek help. People with higher levels of psychological distress have, for instance, increased use of general medical care over periods as long as a year,[34] and thus the distress probably serves to heighten the propensity to seek help or to reduce the person's tolerance for physical and other problems that would not have been taken for professional help under other circumstances. Thus, people may use services because of or for help with psychological distress, even though the distress levels may be relatively stable.

To examine the negative-provider-reaction hypothesis, patients were asked if they had been "rejected," a clearly negative provider reaction, or "referred," a provider reaction often perceived negatively by patients. Patients were asked, "At (organization) did one or more of the following things happen: you were given some service, that is they tried to help you; you were rejected with no service; you were told to wait or put on a waiting list?" They were also asked, "At any time did (organization) refer you somewhere else or give you the name of somewhere else to go to get help with your problem?" Patients were coded as having been rejected or referred if they so indicated. Referrals were reported by 12 per cent of the respondents and rejections by 3 per cent. Rejection and referral measured in this way were used as separate indicators of negative provider reactions.

Respondents are classified in one of three groups to permit assessment of the other explanatory hypotheses. First, an initial question and related probes were used to elicit respondents' descriptions of all problems they discussed at any time with the service provider. Second, a series of eight questions was used to elicit respondents' descriptions of perceived problems *not* discussed with the provider in each of eight areas: material needs, employment, medical and emotional problems, education, interpersonal problems, leisure time and legal problems. All problems mentioned were categorized as "emotional/personal" by the authors if they were potentially interpersonal or intrapersonal in

locus, or if discussion of the problem would involve revealing inner feelings and exposure of the self to others. Using these responses, respondents were placed in one of three comparison groups: 1) those who indicated discussing an emotional/personal problem with the provider; 2) those who reported an emotional/personal problem in response to the series of eight questions described above, but who initially reported discussing no such problems with the provider; and 3) those who reported no emotional/personal problems, either in the initial question concerning discussions with the provider or in the latter questions concerning other problems they had but did not discuss with the provider. Respondents who said they discussed an emotional/personal problem with a provider were considered by definition to have admitted having this problem.

We assumed that respondents would, in general, be willing to discuss personal problems with a research interviewer, and would be at least as willing to discuss these problems with a research interviewer as with a professional, given the stigma often associated with seeking professional help. If respondents did not report personal problems that they themselves recognized, whether or not these were discussed with a provider, those respondents would be incorrectly categorized in group 3 rather than in groups 1 or 2. If this were the case, group 3 would be a more mixed group in terms of problem recognition and presentation to providers, reducing the chances of our finding clear differences between group 3 and the other groups.

Analysis Strategy

Multiple regression analyses are used. As organizations varied greatly in the numbers of clients served, differing proportions of clients contacting the agency were randomly sampled at each organization, to avoid clients from any one organization dominating the data. For a similar reason, our resultant stratified sample is analyzed unweighted, although we recognize existing controversy in this area. Thus, while our sample varies somewhat from a simple random sample, we still find it useful to use statistical significance at the 0.05 level as a standard by which to assess the substantive import of the findings.

Since five respondent characteristics were found to be significantly related to both psychological distress and satisfaction, i.e., sex, age, income, education and adult household role, these variables were included as control variables. For these analyses, age was coded in years, income in 13 categories from under $2,000 to over $20,000, and education in years of formal schooling. Major adult household role is a dichotomy between being an adult head of household or spouse of a head of household, and having another household role. These statistical controls guard against the possibility that satisfaction and psychological distress are spuriously related due to these variables.

Results

For the entire sample of 366 respondents, psychological distress is significantly correlated, at the zero-order level, with all three satisfaction measures, i.e., satisfaction with humaneness ($r = -0.10$, $p < 0.05$), competence ($r = -0.22$, $p < 0.05$) and general quality of service ($r = -0.22$, $p < 0.05$). After controlling for the five possibly confounding respondent characteristics described above, psychological distress remains significantly associated with satisfaction with competence and general quality of services in the entire sample.

Several explanatory hypotheses are examined using a separate multiple regression of each of the three satisfaction dependent variables on: psychological distress; dummy variables for two of the nominal categories representing the previously defined subgroups, i.e., the respondent reported personal/emotional problems but

did not discuss them with the provider, and the respondent neither reported nor discussed personal problems with the provider (the omitted category was that in which the respondent both reported and discussed personal problems); a multiplicative term representing the interaction of psychological distress and being in the group reporting emotional/personal problems, but not discussing them with a provider; a multiplicative term representing the interaction of psychological distress and being in the group neither reporting nor discussing emotional/personal problems; and the seven control variables discussed previously (see Table 1).

The General-Dissatisfaction Hypotheses

The first explanatory hypothesis is that psychologically distressed patients and clients are generally negative, dissatisfied people. This hypothesis leads us to predict that psychological distress itself would be significantly associated with dissatisfaction, apart from whether the patient admit-

TABLE 1. Regression of Satisfaction

Independent Variables	Dependent Variables		
	Satisfaction With Humaneness	Satisfaction With Competence	Satisfaction With General Quality
Psychologic distress	−0.04	−0.20	−0.06
Control variables			
Sex (female)	0.99	0.71	0.06
Age	0.07*	.05†	.01‡
Education	−0.31†	−0.23‡	−0.01
Income	0.13	0.07	0.00
Major adult household role	1.01‡	0.61	0.22
Worsening of presenting problem	−1.56*	−1.31*	−0.45*
Current worry about presenting problem	−0.31	−0.47	−0.10
Subgroups of total sample			
Admitting personal problems but not discussing them with the provider	−2.35‡	−1.37	−0.24
Not admitting or discussing personal problems with the provider	−1.88	−0.97	−0.03
Interactions of subgroups and psychological distress			
Admitting personal problems but not discussing them with the provider *and* high on psychological distress	0.39	0.54	0.01
Not admitting or discussing personal problems with the provider *and* high on psychological distress	−4.03†	−2.49‡	−1.00‡
R^2 =	−0.17	−0.19	0.16

This table presents unstandardized regression coefficients.
* $p < 0.001$.
† $p < 0.01$.
‡ $p < 0.05$.

ted the distress to himself or herself, or discussed it with a professional. As Table 1 shows, psychological distress itself is not significantly related to the satisfaction dependent variables, but only appears important insofar as it interacts with these other factors. These findings are inconsistent with the first hypotheses.

The Negative-Provider-Reaction Hypothesis

The second hypothesis is that providers react negatively to psychologically distressed patients and clients. Rejection is an overt provider reaction, often indicative of more subtle negative provider attitudes that are difficult to measure. Referrals, however well intentioned, are often experienced by clients as negative reactions of providers. This hypothesis leads us to suspect dissatisfaction among patients and clients who report being rejected or referred. Yet, neither reported rejection nor referral was significantly related to psychological distress or to dissatisfaction in the entire sample or any of the subgroups, and, thus, this hypothesis is not supported.

The Unmet-Psychological-Needs Hypothesis

The third explanatory hypothesis is that patients are dissatisfied when they are not able to discuss or deal with emotional or personal problems they bring openly to providers or have as "hidden agendas." These patients or clients recognize that they have emotional or personal problems, and are thought to be frustrated and dissatisfied at not receiving emotional guidance and support from professionals providing other types of services. If this explanation helps account for the fact that the psychologically distressed report less satisfaction, then the psychologically distressed who admit personal problems but did not discuss them with the provider should be significantly less satisfied. This group of respondents is not less satisfied, as shown by the first interaction term appearing in Table 1, and, thus, this hypothesis does not help us understand the association of psychological distress and dissatisfaction.

Apart from psychological distress, respondents not discussing their personal problems with providers are significantly less satisfied with humaneness of service, although not with competence or general quality of service (see Table 1). This provides at least partial support for the notion that patients with a psychological "hidden agenda," or recognized desires to talk about their problems, may tend to be dissatisfied, making it worthy of further exploration. This finding, however, is independent of the respondent's level of psychological distress.

The Denied-Psychological-Distress Hypothesis

The fourth explanatory hypothesis is that certain psychologically distressed people deny or do not recognize emotional or personal problems, but rather tend to externalize the source of any distress and blame others, including providers of care. Such patients, often said to have "underlying" distress, are thought to have more unrealistic expectations of providers and to be dissatisfied when these expectations are not met. Highly distressed respondents who report no emotional/personal problems are assumed to be denying problems rather than being without problems and nevertheless distressed, a critical assumption addressed more carefully below. This hypothesis predicts that dissatisfaction would be concentrated among the psychologically distressed who do not recognize emotional or personal problems. This group of respondents is significantly less satisfied, as shown by the second interaction term appearing in Table 1. Our findings strongly support the hypothesis that persons who deny or do not recognize their psychological distress tend to be dissatisfied with health care and related services.

Three of the sociodemographic variables were significantly associated with satisfac-

tion on at least one of the three satisfaction measures (see Table 1); higher satisfaction is found among older, less educated patients, as well as among those with major adult household roles. Patients were also significantly less satisfied if they perceived their presenting problems to have worsened since they sought help. Worries about their presenting problems at the time of the interview are not significantly associated with satisfaction.

When the percent dissatisfied are examined (see Table 2), the patterns observed in earlier analyses are replicated. In the total sample, an average of 9.6 per cent indicated dissatisfaction on one of the three satisfaction measures. For those psychologically distressed respondents who do not acknowledge emotional/personal problems, three times as many, or 30.7 per cent, report comparable dissatisfaction. In contrast to most studies of patient or client satisfaction, which show large majorities reporting very high satisfaction and very small percentages indicating dissatisfaction, roughly one third of the psychologically distressed who do not admit emotional/personal problems said that they were dissatisfied.

Finally, the association between psychological distress and dissatisfaction among patients not reporting personal problems was investigated within types of provider organizations to see if the relationship held across the variety of organizations in the sample. The pattern of results was consistent across organizations of different functions, e.g., medical, rehabilitation, social

TABLE 2. Dissatisfaction by Psychological Distress for the Total Sample and Subgroups*

Patient Groups	Psychological Distress (0–2 Symptoms)	Psychological Distress (3–9 Symptoms)	Significance of Difference of Proportions
Total sample	(N = 244)	(N = 122)	
% dissatisfied with humaneness	5	13	0.01
% dissatisfied with competence	7	10	NS
% dissatisfied with general quality	10	20	0.01
Subsamples			
Group A: Acknowledged and discussed personal problems with the provider	(N = 32)	(N = 38)	
% dissatisfied with humaneness	6	3	NS
% dissatisfied with competence	6	3	NS
% dissatisfied with general quality	16	13	NS
Group B: Acknowledged but did not discuss personal problems with provider	(N = 58)	(N = 58)	
% dissatisfied with humaneness	9	10	NS
% dissatisfied with competence	12	9	NS
% dissatisfied with general quality	14	19	NS
Group C: Neither acknowledged nor discussed personal problems with provider	(N = 154)	(N = 26)	
% dissatisfied with humaneness	4	35	0.001
% dissatisfied with competence	6	23	0.002
% dissatisfied with general quality	8	35	0.001

* A respondent is considered dissatisfied if he or she indicated dissatisfaction on the general quality of service question or if the respondent's index scores on the other measures indicated that the average response to the index items were on the dissatisfied end of the continuum.

service or material needs. A wide variety of organization and staff characteristics was investigated in an attempt to locate a factor associated with the presence of psychologically distressed patients or clients not reporting personal problems, but none was found. This suggests that the patterns revealed in this study are general in nature and not confined to organizations with particular functions or other characteristics.

Characteristics of Distressed Patients Not Reporting Personal Problems

We have referred to distressed patients not reporting personal problems as denying them, assuming that most of these patients had emotional/personal problems that they avoided recognizing or reporting. As this assumption is critical to our interpretation, characteristics of the distressed patients not reporting problems were explored to evaluate it. A variety of sociodemographic and attitudinal characteristics of clients was examined to see how psychologically distressed clients not reporting personal problems differed from other psychologically distressed clients.

Among those 122 clients reporting "high" symptom levels (three or more symptoms), not admitting emotional/personal problems was significantly associated with four client opinions: a belief that the presenting problem would get better whether help was sought or not ($r = 0.31$, $p < 0.001$); a low level of worry about the presenting problem when help was sought ($r = 0.20$, $p < 0.05$); a low initial estimate of seriousness of the presenting problem ($r = 0.19$, $p < 0.05$); and a propensity to avoid seeking care of the type sought ($r = 0.22$, $p < 0.05$). There is no apparent reason that patients should perceive their presenting problem as less serious and troublesome just because they have no other personal problems. In fact, patients having few problems might tend to overemphasize the seriousness of the few problems they do have. Nor is it clear why patients with no personal problems should have negative opinions concerning seeking help. Together, these findings are consistent with a picture of the psychologically distressed who report no personal problems as having a tendency to downplay problems and possibly to avoid becoming dependent on a provider for help. This pattern of results suggests that, as a group, the patients are not free of personal problems, but rather are denying or avoiding them.

Discussion

Small and usually statistically significant relationships between psychological distress and dissatisfaction measures are found using the entire sample. These relationships account for, at most, about 4 per cent of the variance in patient satisfaction and are themselves of questionable practical significance. Subsequent analyses revealed a strikingly dissatisfied group of clients who were psychologically distressed but denied having problems. While this group constituted only 7 per cent of the sample, more than one third of all dissatisfied respondents were in it. A patient in this group of distressed deniers was more than six times as likely to be dissatisfied as someone not in this group, making their experience worthy of considerable attention by researchers and practitioners.

In the exploration of alternative hypotheses that led to this finding, four hypotheses were examined to account for the relationship between psychological distress and satisfaction. First, are psychologically distressed help seekers simply dissatisfied people? The results showed that relationship between psychological distress and satisfaction was not constant across subgroups of distressed respondents differentiated on whether emotional/personal problems were acknowledged or not. Thus, the data do not support this first hypothesis.

Second, is dissatisfaction a result of overt negative provider reactions, which frus-

trate and alienate the psychologically distressed? Respondent reports of being rejected or referred were used as indicators of provider reactions that might be experienced negatively by patients. No evidence that the psychologically distressed are more likely to experience rejection or referral was found, and neither rejection nor referral could explain the higher dissatisfaction among psychologically distressed help seekers.

Subtle provider attitudes, not translated into the more observable and active responses such as rejection or referral, may be associated with dissatisfaction. As these attitudes were not measured in this study, this possibility cannot be examined. However, if the more overt provider acts, readily visible to clients, are unrelated to satisfaction, then we would not expect the more subtle attitudes, less visible to patients and clients, to be related. In addition, the lack of a relationship is more notable given that even well-motivated referrals of the psychologically distressed are often unfavorably received. This biases the data in favor of finding a negative association between referral and satisfaction, but even so, we did not find such an association.

The third explanation investigated is that dissatisfaction may result when patients feel the need to discuss personal or emotional problems with a professional, but do not have a chance to do so. No support was found for this explanation.

Apart from psychological distress, regression analyses revealed that patients admitting personal problems but not discussing them with a provider were significantly less satisfied with humaneness, but not with competence or general quality of service. This finding is worthy of further research attention. However, the results suggest that the effect of unmet needs to discuss problems on dissatisfaction is largely independent of level of psychological distress.

The major finding of this investigation is that psychologically distressed patients and clients who do not admit emotional or personal problems tend to be markedly more dissatisfied with services. Dissatisfaction tended to be concentrated in this group. We believe that these psychologically distressed persons who did not admit emotional or personal problems were probably denying them. The questionnaires contain multiple questions focusing on various life problems. To be classified as not admitting any personal problems, a respondent would have had to disclaim persistently such problems. Additionally, psychologically distressed persons admitting no personal problems appeared to downplay the seriousness of their problems and to avoid seeking professional help, a pattern consistent with denial. Persons not admitting personal problems, of course, might simply have none. However, this seems more likely among those reporting low rather than high levels of psychological distress. Thus, we feel that the psychologically distressed patients in this study who did not admit personal problems were likely denying or avoiding them.

Denial is a defense mechanism that is common, and often normal and adaptive. It occurs regularly among sufferers from severe illness[35,36] and may be part of a normal recovery process from severe loss. However, denial as conceptualized here is a general personality defense, not denial of a particular problem but rather an avoidance of a wide range of difficulties.

Other types of psychologically disturbed people, not necessarily scoring high on the distress measure used in this study, may also tend to be dissatisfied or to produce negative provider reactions. This would include persons who were passive-dependent and sociopathic, and certain hypochondriacs who use their problems as defenses against unfavorable psychological problems.[37] Thus, this study should not be generalized beyond its particular conceptualization and measurement of psychological distress.

Psychologically distressed persons not admitting to having personal problems were found to have substantially higher levels of dissatisfaction across a range of types of service agencies. The consistency of this pattern across types of agencies and types of client problems suggests that the source of dissatisfaction is associated with individual patient disposition rather than the nature of the providers or the peculiarities of the presenting problems.

The finding of high dissatisfaction among distressed deniers is subject to a variety of explanations. Their dissatisfaction may stem from the processes by which they are selected into care. Their denial or lack of awareness of their problems may result in their more often choosing an inappropriate source of help. The fact that they seek service at all may suggest that they are reluctant help seekers from the beginning, possibly being pushed to seek help by family or friends.

Provider reactions to these distressed deniers may provoke their considerable dissatisfaction. Their general characterization by service providers as more frustrating and less interesting may result in a variety of negative provider reactions, more subtle than the rejection and referral investigated in this study. Within service organizations they may be diverted toward less well-trained and experienced providers; other studies have shown that this happens to less valued clients. These providers may deliver less satisfactory services. Distressed deniers may receive less or different service because they claim fewer and less serious problems. Professionals may believe them, and make less effort and take less interest in their cases, with resultant dissatisfaction.

Finally, distressed deniers may have a general tendency to blame and find fault with others. This could lead them to be less cooperative with treatment suggestions, producing poorer and less satisfying outcomes. Also, these people may tend to blame and have difficulties with family, friends and employers, even if they do not recognize these difficulties.

These explanations—selection into treatment, provider reactions and client characteristics—each have different implications as to what might be the best strategies for care and ways of increasing satisfaction within this group of distressed deniers. For both practical and theoretical reasons, future research should examine these various explanations.

Our sampling procedures give us confidence that the respondents are broadly representative of clients seeking help at these agencies. Whether generalization of the findings to other types of services and communities is justified is another question. While we purposely studied a broad range of agency types, many kinds of services were necessarily omitted, such as clinics treating largely "psychosomatic" disorders, and the processes suggested in this research might not apply in certain settings. In addition, the study was conducted in a city with a large number of specialized and tertiary care services. Clients drawn to and served by such a health and social service system may have different psychological profiles and standards for evaluating their care than do clients in a less resource-rich community. These questions can only be adequately addressed in similar studies of other clients and areas.

While not the major focus of this study, our findings confirm earlier accounts that satisfaction tends to be positively associated with patients' age and negatively associated with years of formal education. Previous research has generally failed to identify a patient group by attitudes or social characteristics that is as dissatisfied as are the patients denying their problems in this study. The relatively high level of dissatisfaction among these patients and clients should be cause for special attention by both researchers and clinicians.

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Life-Styles, Health Status and Medical Care Utilization

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This study examines the relationship between three life-style variables (drinking, smoking, and physical activity) and three health status measures (physical, mental and general health status) and the use of medical care services. Up to seven years of utilization data were available for linkage with survey data on life-style variables of a random sample of 2,502 adults in an HMO. Relationships between life-style variables and health status measures were examined. Then each life-style variable was examined in relation to medical care utilization for eight disease classes in an ICDA-based disease classification system. A separate analysis is performed for males and females in four age categories. While relationships between the life-style variables and health status measures are not statistically significant for all sex/age groups, they are quite consistently in the expected direction, and life-style variables show some potentially interesting relationships to utilization for diseases with strong psychological or emotional components.

IT IS INCREASINGLY ACCEPTED that health is highly related to life-styles, although the mechanisms responsible for this interaction are not clearly established. Three facets of life-style frequently encountered in the literature on health status and disease etiology are cigarette smoking, drinking of alcoholic beverages and physical exercise

The clearest relationship between a specific morbidity and one highly visible personal behavior is that between cigarette smoking and lung cancer. The association between smoking and heart disease is also quite well established, but there is less certainty that this is an etiologic relationship.

The role of exercise in heart disease has not been clearly established, though data have been reported that are consistent with the hypothesis that physical activity reduces coronary heart disease mortality. Hennekens et al. compared men who died from coronary heart disease with a matched sample of living neighborhood controls and concluded that increased physical activity was associated with a decreased risk of coronary death.[1] Paffenbarger and Hale studied a large group of longshoremen for over 20 years (or to the age of 75 years, or death) and found that

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men in the high-activity work category, when compared with men in other work categories, experienced a lower coronary death rate, especially in the case of sudden-death syndrome.[2] Morris et al. report data that suggest a lower incidence of coronary heart disease and mortality for workers in more physically active jobs compared with similar workers in less active jobs.[3] A recent study of Harvard male alumni found the risk of first heart attacks to be inversely related to the amount of energy expended through physical activity.[4] Further, exercise was found to be independent of other influences on the risk of heart attack.

There are few data in the literature regarding the effects of physical activity on general health status or on morbidities other than heart disease. There is a general consensus, though, that the health consequences of physical activity are positive.

The effect of alcohol on health has been of longstanding concern. The relationship between a sustained high level of alcohol intake and liver cirrhosis is well established, as is the neurologic outcome of a long history of drinking. Alcohol consumption is also associated with accidents and trauma, though the extent of the relationship remains unknown.

A recent report on alcohol and health reviews the data relating alcohol use to cancer and heart disease.[5] According to that report, alcohol consumption is implicated in the development of certain cancers (especially when combined with the use of tobacco) and in cardiomyopathy. However, the report concludes that longitudinal studies suggest a more complicated relationship between alcohol use and coronary heart disease, including a possible beneficial effect.

In addition to the knowledge that particular life-style factors are significantly implicated in specific morbidities, the notion that health status in general is strongly affected by life-style has wide currency. Little empirical work has been done to test that assumption.

The most recent and probably the best evidence for the effect of life-style on health comes from the Human Population Laboratory Alameda County studies. Wiley and Camacho report data on a sample of Alameda County adults surveyed first in 1965 and again in 1974 that show health practices reported in 1965 to be predictive of health status in 1974.[6] Belloc and Breslow had earlier reported findings of a significant relationship between health practices as reported in 1965 and physical health status as of that time.[7] Follow-up studies with mortality data also showed significant relationships between health practices and mortality rates.[8]

The present study seeks to add knowledge in this area by examining the relationship between three life-style variables and three different health status measures (i.e., physical, mental and general health status) and the use of medical care services for broad categories of morbidities.

Research Setting

The setting for this study is the Oregon Region, Kaiser-Permanente Medical Care Program, a prepaid group practice HMO serving the Portland Standard Metropolitan Statistical Area (SMSA). Five basic characteristics shape the organization of the system: voluntary enrollment; prepayment for comprehensive benefits on a service basis; preventive medical care; integrated, hospital-based health care facilities; and provision of physician services through group medical practice.

This medical care program was established in 1943 and now enrolls more than 250,000 members, or about 20 per cent of the population of the Portland metropolitan area. The demographic and socioeconomic characteristics of the health plan membership correspond closely to those of the Portland SMSA.[9]

Study Population and Data Sources

The population for the present analysis comprises 2,502 adults, a subsample of the population whose medical care utilization first began to be recorded for research purposes in January 1967. This subsample, defined as subscriber units (i.e., families) with at least two years of membership in the Kaiser-Permanente (K-P) program, was extensively interviewed in 1970–1971 to obtain detailed demographic, social and economic data, and data of a situational and attitudinal nature for subsequent linkage to medical record data. Details on the design of the survey and the characteristics of the survey population are reported elsewhere.[10]

The total medical record of this population has been computerized, and all outpatient contacts (including telephone calls and letters) have been recorded from January 1, 1967 through 1973. Data for each contact include time, place, type of service, type of provider, presenting and associated morbidity, symptoms, episodes and procedures indicating the content of the visit. Inpatient data are also recorded for this population.

In the 1970–1971 survey, information also was obtained about the use of physicians outside the Kaiser-Permanente system during the 12 months preceding the interview. The findings, reported in an earlier paper, showed little outside physician use.[11] Hence, it seems likely that the medical care utilization data for this population are inclusive for the periods of time considered.

Measures

The three life-style variables examined in this study are drinking practices, smoking behavior and physical activity, as reported by respondents in the personal interview survey. These are three of the six practices examined in the Alameda County studies. While there are similarities in the way they have been measured, the two studies are not identical because the questions from the surveys upon which the measures are based differ.

Drinking patterns are defined by the quantity of alcohol consumed per occasion combined with the frequency of occasions of drinking.* This quantity–frequency typology is shown in Table 1.

From the typology an index of drinking was created to provide an ordinal measure, grouping together those drinking patterns that are assumed to be most similar in their impact on health. The scores range from 1 to 4 and combine drinking types as follows: 1) abstainers and both regular and occasional light drinkers; 2) occasional heavy drinkers and regular drinkers, occasionally heavy; 3) regular drinkers, frequently heavy; and 4) regular drinkers, heavy. This is a conservative measure of drinking behavior, although it is limited because it includes nothing on the history of drinking. The assumption, therefore, is that current drinking practices reflect past practices. This may be true for most, but it is not likely to be true for all; past heavy drinkers may now be abstainers or light drinkers, for example.

Smoking behavior is measured in terms of smoking history and, among current smokers, by the number of cigarettes smoked. The index scores range from 1 to 9 as given below. Light smokers are defined as smoking half a pack or less per day, medium smokers as one half to one pack per day, and heavy smokers as more than one pack a day. The full index is as follows: 1) never smoked; 2) formerly smoked but stopped more than ten years ago; 3) formerly smoked but stopped within the past ten years; 4) current light smoker, has

* This typology derives from a quantity–frequency coding scheme suggested in another connection by Dr. Robin Room, Social Research Group, School of Public Health, University of California, Berkeley. While Dr. Room's contribution is gratefully acknowledged, he is not responsible for the resultant typology.

TABLE 1. Quantity–Frequency Typology of Drinking Practices

	Type of Drinker					
	Regular Drinker				Occasional Drinker	
Quantity–Frequency	Heavy	Frequently Heavy	Occasionally Heavy	Light	Heavy	Light
Occasions on which 6 or more drinks consumed per sitting	At least once weekly	1–3 times monthly	Less than once a month	Never	1 or more times a year	Never
Frequency of drinking	Weekly	Weekly	Weekly	Weekly	Less than weekly	Less than weekly

smoked ten years or less; 5) current light smoker, has smoked more than ten years; 6) current medium smoker, has smoked ten years or less; 7) current medium smoker, has smoked more than ten years; 8) current heavy smoker, has smoked ten years or less; 9) current heavy smoker, has smoked more than ten years.

A physical activity index was created from responses to an open-ended question about the kinds of leisure-time activities engaged in. Six types of activities entailing significant physical exertion were identified and arbitrarily weighted and summed to produce the index. The weighting was arbitrary because the questioning did not ascertain the amount of time spent at the activity per occasion, the number of occasions per interval, and the length of time the activity had been included in the person's repertoire of behavior.

Types of activities that tend to be seasonal and/or do not inherently require a lot of physical exertion were assigned weights of 1, while types that span seasons or are not inherently seasonal and/or do require considerable physical exertion when pursued were given weights of 4. The four types of activities assigned weights of 1 are camping, fishing, gardening and hunting. The two types of activities given weights of 4 are "participating in sports" and "other physical activities," including walking, jogging, running, swimming, and the like. This ordinal measure, then, has a potential range of scores from 0 to 12.

Medical care utilization for this analysis is the 1967–1973 mean annual rate of outpatient contacts (i.e., office visits and telephone/letter contacts) with the Kaiser-Permanente system for disease classes in the Kaiser clinical-behavioral classification system (except pregnancy and its complications and nondisease, i.e., preventive care, refractive errors, and miscellaneous.).

The classification system, based on ICDA codes, was devised for investigating issues relating to medical care utilization. It purports to reflect a clinical reality from the perspective of physicians while grouping together those diseases that, on an a priori conceptual basis, are likely to produce similar behavioral responses in persons with similar sociodemographic and psychosocial characteristics.

The classification system groups the conditions listed in the ICDA into ten classes: 1) pregnancy and its complications (which are excluded from the present analysis); 2) trauma and adverse effects of external causes; 3) nondisease (e.g., preventive care), refractive error and miscellaneous (also excluded from this analysis); 4) diseases generally requiring hospitalization (except psychiatric hospitalization); 5) diseases with a high emotional component (including psychiatric

conditions that may result in hospitalization); 6) treatable chronic disease; 7) nontreatable chronic disease; 8) acute microorganism disease; 9) acute nonmicroorganism disease; and 10) symptoms of undiagnosed disease (i.e., physical symptoms but no diagnosable disease state). The classification system has been described in detail by Hurtado and Greenlick.[12]

The number of contacts for each of the disease classes (except pregnancy and nondisease) has been summarized for 1967 through 1973 for each person in the study population. These summaries have then been converted into mean annual rates to take into account differing lengths of membership in the Kaiser-Permanente program. (Fifty-five per cent of the subjects were enrolled for the full seven-year period, while the remainder were enrolled between two and seven years.)

Three nonutilization-based measures of health status are included in this analysis. One is intended as a measure of physical health status, another as a measure of mental health status, and the third as a general or overall health status measure. All three measures derive from personal interview data rather than medical record data, and none is based on reports of utilization behavior.

The physical health measure was developed from responses to questions about recent symptom experiences. Six specific symptoms—dizziness, diarrhea or constipation, skin rashes, persistent cough, lumps or discolored skin, and sore throat or runny nose—were selected because of their physical manifestations and because they also characterize medically significant diseases not generally regarded as mental or emotional.

A physical health index was developed by multiplying the coded frequency with which respondents reported being bothered by each symptom (never = 0, sometimes = 1, often = 2) by a weighting system intended to reflect the seriousness of the symptom. The weights were developed empirically according to the proportion of all respondents who, in a separate question, reported for each symptom whether they thought that a physician ought to be consulted right away. A weight of 1 was assigned for sore throat and for diarrhea or constipation (since 9 per cent and 13 per cent of the respondents, respectively, said a doctor should be consulted right away). Dizziness and skin rashes were each assigned a weight of 4 (38 per cent and 39 per cent, respectively, said a doctor should be consulted right away). Persistent cough and lumps or discolored patches on the skin were both given a weight of 8 (for each, 83 per cent said a doctor should be consulted right away). The weighted scores were then summed across the six symptoms to produce a possible range of scores from 0 to 52.

Mental health status is measured by the 22-item mental health scale developed in the Midtown Manhattan study[13] and included in the Kaiser-Permanente survey. This measure is purported to be a general measure of mental health, although at least one author suggests that it is primarily a measure of psychophysiological symptomatology and general malaise.[14] The index, with a possible range of scores from 0 to 22, was scored in the conventional manner.

The measure of general health status is simply the self-assessments of subjects, an approach commonly used in health surveys. Each person was asked to characterize his/her health "in general" as excellent, good, fair or poor.

Table 2 displays frequency distributions and mean scores on the life-style and health status measures by the sex/age categories created for the analysis. These descriptive data on the number of subjects in the various sex/age categories and their distributions or mean scores on the life-style and health status measures are provided as background for the analysis.

Also included for background are the data presented in Table 3, showing for each disease class the proportion of males

and females in each category who had at least one medical contact for a disease or condition included in that class. Except for "Chronic Nontreatable Diseases" and, for males and females under the age of 50 years, "Diseases Generally Requiring Hospitalization," the proportions with contacts for disease/conditions within each disease class are never less than 25 per cent. In fact, for most of the sex/age groups, the proportion with at least one contact during 1967–1973 is in excess of 50 per cent.

Analysis

The analysis is performed by first examining the relationships between the three life-style variables and the three health status measures. Then each of the life-style variables is examined in relation to the use of medical care services for each of eight disease classes in the Kaiser clinical-behavioral disease classification system. The relationships are expressed as Pearson correlation coefficients.

A separate analysis is performed for males and females in each of four age categories: under the age of 35 years, 35–49, 50–64, and 65 and over. This approach is employed as a way of controlling for the relationships of sex and age to the variables of analytic interest rather than simply controlling for them statistically (e.g., by producing partial-correlation coefficients). Thus, the relationships between the life-style variables and the health status measures and the use of medical care services for the various classes of morbidities can be observed for young adult males/females, early middle-age males/females, late middle-age males/females and older males/females.

The analysis is necessarily a limited test of the relationship between the selected life-style variables and health status. The primary reason is that the three measures of health status and two of the three meas-

TABLE 3. Per Cent of Males and Females in Each Age Category with One or More Contacts During 1967–1973 for Morbidities in the Disease Classification System

Disease Class	Males				Females			
	Under 35 (N = 282)	35–49 (N = 362)	50–64 (N = 306)	Over 65 (N = 205)	Under 35 (N = 369)	35–49 (N = 368)	50–64 (N = 364)	Over 65 (N = 246)
Requiring hospitalization	12.4	16.6	31.0	53.2	17.9	19.3	25.3	37.0
With high emotional component	31.9	32.0	30.1	34.1	44.2	45.6	48.9	43.1
Chronic nontreatable	5.7	7.5	6.9	13.7	7.0	10.9	20.0	10.6
Chronic treatable	56.7	74.3	79.4	92.7	74.0	86.1	85.7	90.6
Acute microorganisms	77.3	72.1	67.6	76.6	88.3	80.4	74.4	73.2
Acute nonmicro-organisms	28.4	35.1	42.8	55.1	33.6	41.0	50.0	63.4
Symptoms of undiagnosed disease	58.5	66.8	65.7	74.1	82.4	76.9	77.2	80.1
Trauma	74.5	69.9	62.4	55.6	64.5	64.9	64.8	64.2

ures of life-style (drinking and physical exercise) are for the same point in time. Health status, therefore, might be a *cause* of life-style rather than a *consequence*. That is, people may abstain from drinking or reduce their intake of alcohol and be physically inactive *because* of their health.

Findings

The three health status measures were significantly correlated with each other for both males and females in all age categories. The correlation of the physical health status measure with the mental health scale was 0.359 for males and 0.329 for females, and with the general health status measure, 0.262 for males and 0.209 for females. The correlation between the mental health scale and general health status was 0.356 for males and 0.374 for females. This pattern is essentially the same for the various age categories. These intercorrelations are not so high as to make the measures redundant, nor so low as to suggest that they are measuring totally unrelated phenomena.

The intercorrelations among the life-style variables showed smoking and drinking behavior to be significantly correlated for both sexes (0.330 for males and 0.357 for females) and in all age groups. There was virtually no relationship between smoking and physical activity (−0.035 for males and 0.022 for females). And while drinking behavior was significantly related to physical activity for both males (0.079) and females (0.061) as a whole, that relationship remained significant within sex/age categories only for males and females between the ages of 35 and 49. The relationships, though low, are positive, indicating that those in this middle-age category who engage more in physical activity also tend to drink more (the "19th hole" phenomenon of golf!).

Life-Style and Health Status

The correlations between the three life-style variables and the three health status

TABLE 4. Correlations between the Life-Style Variables and Health Status Measures by Sex and Age

	Males			Females		
	Drinking	Smoking	Physical Activity	Drinking	Smoking	Physical Activity
Physical health						
Under 35	−0.005	−0.039	0.098*	−0.043	−0.066	0.083
35–49	−0.092*	−0.088*	−0.045	−0.045	−0.018	−0.018
50–64	−0.029	−0.129†	0.048	−0.059	−0.105*	0.032
Over 65	−0.097	−0.158†	−0.015	0.035	−0.153†	0.062
Mental health						
Under 35	−0.054	−0.117*	0.082	−0.124	−0.198‡	0.007
35–49	−0.041	−0.057	0.038	−0.011	−0.094*	0.082
50–64	−0.022	−0.053	0.118*	0.007	−0.095*	0.164‡
Over 65	0.000	−0.038	0.104	−0.045	−0.057	0.100
General health						
Under 35	0.010	−0.022	−0.014	−0.108	−0.187‡	0.110*
35–49	0.011	−0.163‡	0.144†	−0.050	−0.078	0.177‡
50–64	−0.089	−0.107*	0.088	−0.009	−0.065	0.103*
Over 65	−0.111	−0.140*	0.243‡	−0.003	−0.093	0.077

* $p \leq 0.05$.
† $p \leq 0.01$.
‡ $p \leq 0.001$.

measures for the various sex/age groups are shown in Table 4.

There is a negative relationship between drinking and the three health status measures for all but a few sex/age groups. The relationships, however, tend to be weak and nonsignificant. The only statistically significant relationship is between drinking and physical health status for males between the ages of 35 and 49: the greater the drinking, the more the experiencing of physical symptoms.

Smoking behavior is negatively related to each of the three health status measures for all sex/age groups. However, for males under the age of 35, the only significant relationship is for mental health status. Males in the other age categories show significant relationships for both physical health and general health status, but not for mental health status.

Among females, the pattern of significant relationships is different. All but the oldest category of females show a significant relationship between smoking and mental health status, while females in the two oldest categories show significant relationships for physical health status. Only the youngest category of females shows a significant relationship between smoking and general health status.

Physical activity is positively related to the health status measures for all but a few sex/age groups, although most are not statistically significant. For each of the male age categories, there is one significant relationship between physical activity and health status. For males under the age of 35, it is for physical health status; for males 50–64 it is for mental health status; and for males 35–49 and 65 and above, it is general health status.

Again, the pattern of significant relationships among females tends to be different, except that for females between the ages of 50 and 64, like males at that age, there is a significant relationship between physical activity and mental health status. For all but the oldest group of females, there is a significant relationship between physical activity and general health status. None of the female age groups shows a significant relationship between physical activity and physical health status.

Overall, the correlations between the life-style variables and the health status measures tend to support the hypothesis of a relationship between life-style and health status generally, as opposed to only specific health conditions or diseases. The next question to be explored in the analysis is whether there is a relationship between the life-style variables and medical treatment for broad disease classes.

Life-Style Utilization

The relationships between drinking behavior and the use of medical care services for the different disease classes are shown in Table 5. For most sex/age categories, the relationships approach zero or are negative. There are some interesting exceptions. For males under the age of 35, there are significant positive relationships between drinking and the rate of medical care contacts for diseases with a high emotional component, for symptoms of undiagnosed disease and for trauma. For females, the only significant positive relationship is between drinking and rate of contacts for diseases generally requiring hospitalization. For males between the ages of 35 and 49, there are significant negative relationships between drinking and rate of contacts for chronic nontreatable diseases and for symptoms of undiagnosed disease. For females in that age category (35–49), there are significant negative relationships between drinking and chronic treatable and acute microorganism disease.

In general, except for males under the age of 35, people who drink more tend to have fewer contacts for medical care except for trauma. While this could mean that people who drink more are healthier, it could also mean that heavier and more frequent drinkers avoid seeking medical care

TABLE 5. Correlation between Drinking Behavior and Rate of Contacts for the Different Disease Classes by Sex and Age

	Requiring Hospitalization	With High Emotional Component	Chronic Non-treatable	Chronic Treatable	Acute Micro-organism	Acute Non-micro-organism	Symptoms of Undiagnosed Disease	Trauma
Males								
Under 35	0.017	0.124	0.008	0.007	0.069	0.016	0.103*	0.142†
35–49	−0.066	0.005	−0.065	−0.158†	−0.053	0.084	−0.116*	−0.046
50–64	−0.045	−0.071	−0.033	−0.040	−0.045	−0.041	−0.060	0.055
Over 65	0.000	0.007	0.063	−0.044	−0.070	0.046	−0.066	−0.046
Females								
Under 35	0.097*	0.032	−0.013	−0.032	0.047	−0.041	0.018	0.040
35–49	−0.016	−0.022	−0.038	−0.102*	−0.091*	−0.041	−0.030	0.067
50–64	0.010	−0.044	0.008	−0.046	−0.024	−0.028	−0.033	0.082
Over 65	−0.047	0.039	0.018	−0.081	−0.016	0.036	−0.001	0.003

* $p \leq 0.05$.
† $p \leq 0.01$.
‡ $p \leq 0.001$.

except for injuries, or that the less healthy have stopped or reduced their drinking.

The relationships between smoking and the use of medical care services for the different disease classes are shown in Table 6. The relationships tend to be small and frequently negative. The significant positive relationships are between smoking and acute microorganism disease, symptoms of undiagnosed disease, and trauma for women under the age of 35, and for women between the ages of 35 and 49 between smoking and diseases with a high emotional component. The one significant relationship among the male age categories is between smoking and chronic treatable diseases for men aged 65 and above.

For all sex/age groups, there is a positive (though mostly nonsignificant) relation-

TABLE 6. Correlation between Smoking Behavior and Rate of Contacts for the Different Disease Classes by Sex and Age

	Requiring Hospitalization	With High Emotional Component	Chronic Non-treatable	Chronic Treatable	Acute Micro-organism	Acute Non-micro-organism	Symptoms of Undiagnosed Disease	Trauma
Males								
Under 35	0.051	0.058	−0.089	0.007	0.057	0.043	0.086	0.046
35–49	−0.063	0.026	−0.060	−0.071	−0.046	0.007	−0.063	0.005
50–64	−0.050	0.041	0.008	−0.018	0.004	−0.055	−0.043	0.021
Over 65	0.028	0.084	−0.077	0.125*	−0.059	−0.026	0.100	−0.065
Females								
Under 35	0.075	0.040	0.026	−0.036	0.098*	0.050	0.101*	0.149†
35–49	−0.052	0.087*	0.040	−0.089*	0.008	0.039	0.021	0.044
50–64	−0.003	0.011	0.064	−0.010	−0.077	−0.047	0.006	0.016
Over 65	−0.022	0.080	−0.072	−0.027	−0.065	0.051	−0.027	0.046

* $p \leq 0.05$.
† $p \leq 0.01$.
‡ $p \leq 0.001$.

ship between smoking and the rate of contacts for diseases with a high emotional component. The hint of another pattern of positive relationships is between smoking and rate of contacts for symptoms of undiagnosed disease and trauma for most of the sex/age groups.

The relationships between physical activity and the use of medical care services for the different disease classes are shown in Table 7. There is a general tendency for higher levels of physical activity to be associated with lower rates of contacts for most disease classes, though only a few of the relationships are statistically significant.

Among males aged 65 and above, there are significant negative relationships between level of physical activity and rate of contacts for disease generally requiring hospitalization, symptoms of undiagnosed disease and trauma. The only other significant relationships (also negative) are between physical activity and chronic treatable diseases for males aged 50–64 and females aged 35–49 and, for males aged 35–49, acute microorganism diseases.

Summary

While the relationships between the life-style variables and the several health status measures are not statistically significant for all sex/age groups, they are quite consistently in the expected direction. That is, smoking is negatively related to each of the three health status measures for all sex/age groups. For males, these relationships are statistically significant mostly on the physical and the general health status measures, whereas for females, the significant relationships tend to be between smoking and the mental health measure.

The findings on drinking behavior are consistent with cultural norms, which may partially explain the finding of a positive relationship between drinking and the general health status measure for males under the age of 50. Heavy and frequently heavy regular drinkers are more than twice as often found among the younger than among the older males in the study. These younger males much more frequently report their health as excellent; they also tend to use fewer medical services.

TABLE 7. Correlation between Physical Activity and Rate of Contacts for the Different Disease Classes by Sex and Age

	Requiring Hospitalization	With High Emotional Component	Chronic Non-treatable	Chronic Treatable	Acute Micro-organism	Acute Non-micro-organism	Symptoms of Undiagnosed Disease	Trauma
Males								
Under 35	−0.018	0.023	0.050	−0.002	−0.022	−0.022	0.026	0.024
35–49	−0.060	0.029	0.069	−0.053	−0.111*	−0.007	−0.055	0.028
50–64	0.011	−0.074	0.021	−0.112*	−0.061	−0.048	−0.088	0.002
Over 65	−0.163†	−0.078	0.060	−0.061	−0.045	−0.050	−0.224‡	−0.161†
Females								
Under 65	0.005	0.009	0.026	0.047	−0.009	0.065	0.015	−0.029
35–49	0.055	−0.065	−0.054	−0.110*	−0.008	−0.008	−0.027	−0.009
50–64	0.024	−0.061	−0.022	−0.027	0.024	−0.013	−0.034	−0.048
Over 65	−0.076	0.024	−0.001	−0.043	−0.039	−0.093	0.039	−0.036

* $p \leq 0.05$.
† $p \leq 0.01$.
‡ $p \leq 0.001$.

The finding of a positive relationship between physical activity and the health status measures for most sex/age groups is probably partially due to the effects of health on activity. The relationships are not strong, however, and only some are statistically significant. Further, neither the physical health measure (based on a limited set of physical symptoms) nor the mental health measure inherently reflects any incapacity for physical activity, yet both measures as well as the general health status measure tend to be positively related to physical activity.

In terms of medical care utilization, the three life-style variables of drinking, smoking and physical activity show some potentially interesting relationships to rate of contacts for diseases or conditions with strong psychological or emotional components. This is the case, however, for only some sex/age groups: for men under the age of 35, it is drinking and medical care contacts for diseases with a high emotional component, symptoms of undiagnosed disease and trauma; for women under the age of 35, it is smoking and contacts for symptoms of undiagnosed disease and trauma; for women aged 35–49 it is smoking and utilization for disease with a high emotional component; for men aged 65 and over, it is (lack of) physical activity and contacts for symptoms of undiagnosed disease and trauma.

To the extent that these findings have meaning, they suggest that younger men with heavier drinking patterns, middle-aged and younger women who smoke more, and older men who engage in few or no physical activities may be candidates for interventions in which the outcome would be reduced utilization for emotion-related disorders. This is a speculation that needs further examination.

This has been a very limited study of the relationship between life-style and general health status and the use of medical care services within broad categories of morbidities. Ultimately, complex longitudinal studies will be necessary to determine the cumulative effects of life-style on general health status and medical care utilization, but there are many less extensive useful studies that can be undertaken. Modifying life-style may be the best or only way of avoiding or containing the personal, social and economic costs of many of today's health problems or diseases.

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Stress Potential and Esotericity of Health Problems:

The Significance of the Physician's Affective Behavior

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The study examines the assumptions and the interpretation of data from recent studies that were intended to identify and explain patients' inclination to assess the efficacy of medical treatment on the basis of physicians' affective behavior toward them. It was hypothesized that this manner of assessment is specific to the doctor–patient relationship due to the uniqueness of the patient's problem, which is characterized by a relatively high stress potential and esotericity requiring professional help. Empirical investigation of four types of problems that varied in the level of their stress potential and the need for professional help ascertains that a) the stress potential of a problem and the need for a professional solution affect *separately* the propensity of assessing the content of the agent's assistance on the basis of the mode of its presentation; b)judgment of the mode indeed determines the assessment of the content of the professional solution; and c) this manner of assessment may apply also to other roles of the medical setting.

THE POSSIBLE EFFECT that patients' satisfaction with medical treatment may have on compliance with medical advice[1] and on recovery[2–6] has been shown in various studies. That, however, raises questions as to patients' capability of assessing the content and efficacy of the treatment and, hence, the factors that determine their satisfaction with it.

Recent studies showed that in a physician–patient interaction—in both ambulatory treatment[7] and hospitalization[8]—the physician's *affective* behavior toward the patient (the physician's *mode* of behavior toward the patient as a human being) will be a major factor in the latter's assessment of the efficacy of the treatment (*content* of behavior). These conclusions were inferred from data that revealed a strong correlation between a layman's evaluation of the physician's treatment (content) and of the practitioner's affective behavior (mode) toward the patient.

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The rationale underlying the interpretation of these data was inferred from the following characteristics of the patient situation: a) patients are emotionally involved as a result of the subjectively perceived seriousness of the disturbance and uncertainty with regard to its consequences; b) they are ignorant of the medical techniques and, hence, incompetent regarding the required solution, in need of professional help, and incapable, in the course of the interaction with the physician, of judging the contribution of the latter's (content) in promoting their recovery. Moreover, frequently, upon completion of the interaction, they will be unable to judge whether there has occurred a change in their condition and the extent to which such a change is attributable to the physician's action.

These characteristics were inferred from a variety of studies that dealt with the patient situation[11,12] and alluded to the significance of the emotional factor in patients' evaluation of the efficacy of their treatment.[6,9,12,14,17]

However, that these characteristics determine patients' inclination to assess the content of the physician's actions (namely the instrumental–technical dimensions of the treatment) on the basis of the mode of their presentation (the affective behavior toward the patients) was merely an assumption. The question of whether this assumption reflects reality is crucial for the validity of that model. The aim of the present study is to investigate whether this assumption is empirically supported.

Specificity of the Model

The assumption underlying that model was that the inclination to assess the instrumental dimension (content) of an agent's response on the basis of the affective dimension (mode of its presentation) is specific to the patient–physician interaction. This inclination, it has been argued, results from the uniqueness of the patient's situation, in which the problem is characterized, more than in any other agent–client situation, by a high degree of a) stress potential and b) esotericity, hence requiring professional solutions.[18,19] Consequently, validation of the model requires that this manner of assessment will apply solely to such situations, and not to circumstances in which clients' problems are not characterized by emotional involvement and not require professional help. To illustrate, we would expect highly worried ill persons to assess the quality of their physician's treatment on the basis of the latter's affective response. Yet, we would not have such expectation with regard to clients' assessment of, say, a plumber's performance, the efficiacy of which may be readily judged, and clients' physical well-being not involved. Thus, in formal, testable terms, we think that empirical support of the following hypothesis is crucial for the validation of the above mentioned model[7,8]: 1. The correlation between clients' satisfaction with the content of their agent's solution, and their satisfaction with the mode of its presentation, will be stronger in a) high stress-potential problems and b) problems requiring a physician's solution.

Satisfaction With the Affective Dimension of the Response as a Determinant of the Satisfaction With the Instrumental Dimension

At this stage, we would like to note that the proposition underlying the model of the professional–client interaction[7,8] is not simply that of a correlation between the two aspects of the assessment. It implies, rather, that in an interaction involving a high level of stress potential and requiring solution by a physician, the satisfaction with the latter's instrumental response (content of solution) will be dependent on the satisfaction with the affective dimension of the response (mode of presentation). In other words, patients'

satisfaction with the mode of the agent's response should be, to a great extent, a sufficient condition for their satisfaction with the content of the agent's action. A prediction in the reverse direction would disagree with the rationale of that model. In other words, the rationale of the model implies that when patients are satisfied with the mode of the physician's behavior, there are good chances that they will also be satisfied with the content of the physician's solution. However, the chances of being satisfied with the mode when satisfied with the content are much lower. This asymmetry in the predictions agrees with the evidence that solution of patients' physical problems will not necessarily result in the solution of their emotional problems.[14-17] On the other hand, it is inherent in the logic of the model that laymen's judgment of the quality of their treatment is to a great extent based on the physician's affective behavior toward them (cf. 6, 9, 17). According to the logic of the model, no such asymmetry should be expected when relating to other types of problems, which do not involve a high level of stress potential and which do not require a professional's solution.

Thus, it seems crucial for the validation of the model that the above mentioned asymmetry between the frequency distributions of the two dimensions of satisfaction is confined to the patient–physician interaction when problems are commonly recognized as having a high stress potential. In terms of a testable formulation, the validation of the model also requires empirical support of the following hypothesis: 2. The proportion of patients satisfied with the physician's instrumental (content) behavior among those satisfied with his/her affective behavior (mode) is greater than the proportion of those satisfied with the mode among those satisfied with the content. No such asymmetry of the frequency distribution should be expected with respect to nonstressful problems requiring solution by persons other than physicians.

Method

Sample and Fieldwork

A representative random sample of Israeli Jewish urban adults (N = 492)* was interviewed, using a closed questionnaire presented to them by interviewers in the respondents' homes during January 1977.

Measures

Level of Perceived Stress Potential of Problems. In order to arrive at a scale of the perceived stress potential of problems, the respondents were presented with several types of problems (to be outlined later) and asked whether they had ever faced such problems. If their response was positive,† the stress potential of this problem was measured by four variables that reflected the characteristics of the patient–physician interaction as assumed in the models of previous studies[7,8]:

1. The perceived *seriousness* of the problem (1, very serious . . . 4, not serious at all);

2. The respondent's capability of solving the problem (1, very clear how to solve the problem . . . 4, not clear at all).

3. The salience of the problem, namely, the thought given to it (1, thought about it very much . . . 4, not at all). Since everyone is faced with "demands,"[21] but one pays attention to some more than to others,[22] this variable was intended to measure the attention given to that specific problem. Based on recent approaches of Stress[20] and Breakdown,[21] we considered this variable as essential for measuring the stress potential of the problem, believing that it is not sufficient for a problem to be stress arous-

* The sample has been drawn systematically from the Israeli voting register, which is the relatively most reliable updated listing of the Israeli population.

† Only respondents who have faced such problems were investigated, and the results of this study refer to these (See Table 1).

ing by merely considering it as serious and insoluble.

4. The extent to which the respondent was worried by this problem (1, very much . . . 4, not at all) was intended to measure the extent to which an individual feels threatened by this problem, a fact considered to be one of the conditions required for a situation having a stress potential.[22]

Guttman scales, consisting of these four variables for each type of problem, were formed after the replies to each item had been dichotomized (by cutting above and below the median).‡ Thus a scale of the level of stress potential of each type of problem was formed having five degrees: 1, indicating a "very low" stress potential (respondent defining the problem "low" on all four measures), to 5, a "very high" stress potential (problem defined to be "high" on all four variables). With the help of these scales, the types of problems were defined as being of high or low stress potential. The scale served also to differentiate the attitudes of subgroups toward the same problem.

Type of Problem Solver. For the purpose of the study we differentiate between two types: professional (namely, physician) and nonprofessional (e.g., artisan, administrative staff, etc.). This classification served as a basis for the selection of the problems.

Types of Problems. Following the line of our analyses, the types of problems were chosen by two criteria: 1) a hypothetical level of stress potential (to be verified in the course of the analysis on the basis of the responses to the earlier mentioned questions) and 2) the occupation of the required problem solver (physician or nonprofessional). In order to produce a common denominator, only types of problems that might affect respondents or their immediate families' physical well-being were selected. Two types of problems required solution by physicians, one of them by a general practitioner and the other by hospitalization. Considering that hospitalization will usually occur after a GP's intervention, we hypothesized most cases requiring treatment by a GP to be less serious (hence of a lower stress potential) than those requiring hospitalization.

The other two types of problems required solutions by those commonly referred to as nonprofessionals: artisans and administrators. One such problem referred to damages that could be dangerous to the health or life of respondents or their immediate families, and usually required the help of an artisan—such as leakage of gas, uncovered electric wires or damage to the car brakes.§ The second problem concerned health problems of respondents or of their immediate families requiring the help of a medical administrator—such as provision of hospitalization or other medical care. We hypothesized the latter problem to be of higher stress potential, since it was concerned with a threatening event that had already hurt individuals or their families (such as disease), whereas the former is concerned with an event that had occurred but had not yet affected respondents' health although it might be damaging in the future. Thus, four problems were selected and classified according to their empirical level of stress potential, as indicated in Table 1. The percentages presented in Table 1 support empirically the hypothesized level of stress potential. It appears, however, that the type of problems requiring a medical administrator's solution constitute a borderline case. Nevertheless, compared with the other type of problems also requiring

‡ The COR's of each of the scales were 0.82, 0.86, 0.88 and 0.78. Though these COR's are lower than the 0.90 as required for a perfect scale, we considered it as sufficient for our purposes, intended in fact to measure the number of variables on which a respondent is "high."

§ Respondents were presented with illustrations of a variety of problems and not with one specific problem.

TABLE 2. Distributions and Mean Scores for Life-Style and Health Status Variables by Sex/Age Groups*

Life-Style Variables	Males				Females			
	Under 35 (N = 282)	35–49 (N = 362)	50–64 (N = 306)	Over 65 (N = 205)	Under 35 (N = 369)	35–49 (N = 368)	50–64 (N = 364)	Over 65 (N = 246)
Drinking index								
1 (Abstainers; light drinkers)	28.0%	42.1%	62.1%	82.0%	60.9%	65.8%	81.5%	92.5%
2	35.1%	26.6%	18.3%	9.3%	32.4%	22.8%	11.3%	5.0%
3	22.7%	13.2%	8.4%	3.6%	3.6%	5.7%	2.0%	1.7%
4 (Heavy regular drinkers)	14.2%	18.1%	11.2%	5.1%	3.1%	5.7%	5.2%	0.8%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Smoking index								
1 (Nonsmoker)	29.6%	22.7%	20.7%	34.8%	49.5%	43.9%	51.5%	77.0%
2	2.1%	10.0%	17.7%	26.4%	1.1%	4.9%	5.3%	6.6%
3	21.8%	27.4%	21.0%	17.9%	16.9%	10.4%	13.0%	5.8%
4	17.9%	2.2%	1.0%	—	18.0%	4.1%	2.0%	1.2%
5	13.2%	21.9%	25.5%	15.4%	9.6%	26.0%	21.3%	7.8%
6	3.9%	—	—	—	1.6%	—	0.3%	—
7	9.3%	13.3%	11.5%	5.5%	1.9%	9.6%	5.5%	1.6%
8	0.4%	—	—	—	0.3%	—	—	—
9 (Heavy, long-term smoker	1.8%	2.5%	2.6%	—	1.1%	1.1%	1.1%	—
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Physical activity index								
Mean score	4.4	4.6	3.6	2.7	3.4	3.1	2.3	1.7
Standard deviation	2.9	3.2	2.7	2.3	2.9	2.9	2.7	2.1
Health Status Variables†								
Physical health index								
Mean score	3.6	3.3	4.6	5.1	5.4	4.3	4.9	4.9
Standard deviation	5.3	5.3	6.7	5.9	6.0	5.2	6.4	5.8
Mental health index								
Mean score	1.8	1.4	1.5	1.7	2.8	2.5	2.8	2.6
Standard deviation	2.1	1.8	2.0	2.1	2.7	2.3	2.6	2.7
General health index								
Mean score	1.6	1.7	2.0	2.2	1.6	1.8	2.1	2.1
Standard deviation	0.6	0.7	0.8	0.9	0.6	0.7	0.8	0.9

* The numbers (Ns) shown in the table are approximate. For each variable, those few persons with missing data were excluded from the tabulation.
† For each index, the lower the score the better the health. In subsequent tables, however, signs of coefficients are positive when the direction is toward better health and negative when the direction is toward poorer health.

TABLE 1. Classification of Types of Problems by Level of Stress Potential and Type of Problem Solver (Number in parentheses indicates number of individuals who faced such a problem and turned for a solution to the appropriate role incumbent.*)

Hypothetical and Actual† Level of Stress Potential	Type of Problem Solver: Physician — Per Cent Defining Problem to Have a High‡ Stress Potential	Physician — Type of Solution	Nonprofessional — Per Cent Defining Problem to Have a High‡ Stress Potential	Nonprofessional — Type of Solution
High†	65 (219)	Treatment by physician in hospital	40 (248)	Solution by medical administrator
Low†	34 (438)	Treatment by GP	22 (209)	Repair by artisan

* Only respondents who faced such a problem and turned for its solution to the appropriate role incumbent were included.

† The "actual" level of stress potential is determined by the percentage defining the problem as high on stress potential and by using the average percentage ($\bar{x}$ = 40 per cent) as cutting point: percentages equal or above average were defined as indicating a high level of stress potential.

‡ High = being high on at least three of four items on the scale of stress potential.

low-esotericity solutions, their level of stress potential is much greater.

Satisfaction With Instrumental Behavior (Content). Respondents' assessment of the extent to which the agent's instrumental behavior (content) furthered the achievement of their goals was obtained by asking about the extent of satisfaction with the treatment given to each of the problems by the relevant problem solver (1, very satisfied . . . 6, very dissatisfied).

Satisfaction With Affective Behavior. Respondents' evaluation of the problem solver's affective behavior (mode) was obtained by asking about their satisfaction with the attitude toward them during the interaction. (How satisfied were you with artisan's/GP's, etc., attitude toward you: 1, very satisfied . . . 6, very dissatisfied).

Results

Association Between Satisfaction With Instrumental and With Affective Responses

The data in Table 2 support hypothesis 1. We shall first consider the results related to the total population. The correlation[‖] between satisfaction with the instrumental and with the affective response rises with the rise of the level of both the perceived stress potential of the problem and of the professionalization of the problem solver: the monotonic correlation (μ_2) increases gradually from 0.75 with regard

‖ A weak monotonicity coefficient (μ_2) was used. This coefficient is especially appropriate in conditions such as ours, in which linearity is not assumed, as there is no assumption of an equal distance between each of the categories in each of the items and the number of effective categories differs from item to item. Since the weak monotonicity coefficient (μ_2) does not assume a precise linear regression, its absolute value will be higher than that of Pearson's coefficient.[23,24] The formula for μ_2 is as follows: given n pairs of observations on numerical variables (x, y), (x_i, y_i) (i = 1, 2, . . . ,n), then

$$\mu_2 = \frac{\sum_{h=1}^{n} \sum_{i=1}^{n} (x_h - x_i)(y_h - y_i)}{\sum_{h=1}^{n} \sum_{i=1}^{n} |x_h - x_i| \, |y_h - y_i|}$$

TABLE 2. Monotonic Correlation Coefficients (μ_2) Between Satisfaction With Instrumental and Affective Response to Four Types of Problems by Level of Perceived Stress Potential of the Problems and Type of Problem Solver

Level of Perceived Stress Potential of Problem*	Type of Problem Solver	Coefficients of Monotonic Correlation (μ_2) Between Satisfaction With Instrumental and With Affective Response of Agent		
		Total Population	Subgroups Who Perceive Relative Stress Potential as:	
			Low	High
A Low (22%)	Nonprofessional†	0.75	0.76	0.74
B Low (34%)	Physician‡	0.81	0.82	0.80
C High (40%)	Nonprofessional§	0.89	0.84	0.93
D High (65%)	Physician‖	0.94	0.83	0.97

* Numbers in parentheses indicate percentage of total population who define problem as high on stress potential (see Table 1).
† Problem requiring solution by artisan.
‡ Problem requiring solution by GP.
§ Problem requiring solution by medical administrator.
‖ Problem requiring solution by physician in hospital.

to a problem defined as low by both criteria to 0.94 regarding a problem characterized as high on both. Yet, surprisingly, the data apparently indicate greater weight of the stress potential of the problem than of the professionalization of the problem solver in assessing the instrumental behavior (content) on the basis of the affective behavior (mode). This may be inferred from the stronger correlation existing between the two behaviors with respect to the problem requiring a solution by a medical administrator (high stress potential–nonprofessional) than with respect to that requiring a GP (low stress potential–professional). In fact, it appears that both stress potential and the type of problem solver affect, independently, the correlation between the two assesment components.

The hypothesis that both the professionalization of the problem solver and the perceived stress potential of the problem determine the strength of the association gains additional support by comparison of the results among subgroups who consider the problem relatively high on stress potential. Comparison of the data in the two righthand columns (subgroups) for the first two rows (A and B) reveals an increase in the strength of the correlation with the rise of the professionalization of the problem solver, independent of the level of stress potential assigned by the subgroups.

Comparison of rows A and C reveals an increase in the strength of the correlation with the rise of the level of the perceived stress potential of the problem in both subgroups, though the degree of professionalization is low. But when the generally accepted level of stress potential is relatively high (C and D), the increase in association due to the rise in professionalization occurs only for those who assign the problem a relatively high level of stress potential.

Determination of Satisfaction With the Instrumental Behavior of the Problem Solver by the Extent of Satisfaction With Affective Behavior

According to hypothesis 2, the chances for those satisfied with the affective be-

havior of a physician to be also satisfied with the physician's instrumental behavior are greater than for those satisfied with the instrumental behavior to be also satisfied with the affective. It was also maintained that no such trend would occur with respect to problems that do not involve a high stress potential and do not require a physician's solution.

In order to investigate this issue, we shall employ a simple technique that has recently been demonstrated by Guttman.[25] This technique requires a comparison between both directions of a cross-tabulation between a pair of variables. The conclusions are inferred from the extent of *similarity* of the marginal distribution in either direction. Hence, in order to reach a conclusion as to whether the satisfaction with instrumental behavior of the response is determined by the affective behavior, we shall use cross-tabulations between satisfaction with the instrumental behavior and satisfaction with the affective behavior. The pairwise frequency distributions are presented in Table 3.

Table 3 contains eight subtables, each of the four topics appearing twice in order to show the conditional distribution in each direction; first, the level of satisfaction with the affective behavior is held constant, and then (on the righthand side) the level of satisfaction with the instrumental behavior is held constant. The distinctive feature is that regarding the first problem (low level of stress potential and nonprofessional problem solver), the distributions in either diretion are similar, whereas for each of the other three problems, the distribution differs in each direction. Let us inspect the second problem, which requires a GP's solution (low stress potential and professional problem solver): 84 per cent of the respondents who were "very satisfied" with the affective response were also "very satisfied" with the instrumental response, but almost none (1 per cent) was "not so satisfied," "not satisfied" or "very dissatisfied" with the instrumental behavior. But, on the other hand, only 68 per cent of the "very satisfied" with the problem solver's instrumental behavior were also "very satisfied" with the affective response. Moreover, 91 per cent of the respondents who were "satisfied" with the affective response were also "very satisfied" (19 per cent) or "satisfied" (72 per cent) with the instrumental response, whereas only 55 per cent of those "satisfied" with the instrumental response were also "very satisfied" (9 per cent) or "satisfied" (46 per cent) with the affective response.

An identical trend can also be observed with respect to the fourth problem (hospitalization): 89 per cent, compared with 77 per cent with respect to the "very satisfied"; 96 per cent compared with 84 per cent regarding the "satisfied." Interestingly, however, the third problem (medical administrator) also reveals a similar trend in spite of the nonprofessional solution, yet the high stress potential.

These relationships suggest that when the level of stress potential of a problem is high and/or requires a professional's solution, satisfaction with the problem solver's instrumental behavior is more determined by than coincidental with satisfaction with the affective behavior. Hence, it is suggested to view this type of relationship as indicating that satisfaction with the affective behavior is rather frequently a sufficient condition for satisfaction with the instrumental behavior. If respondents express strong feelings of satisfaction with their agent's affective response, we can predict with a high degree of confidence that they will also be very satisfied (or at least satisfied) with his/her instrumental behavior, but certainly not dissatisfied. However, if they are satisfied with the instrumental behavior, we cannot be sure that they will also be satisified with the affective behavior. These results hold only when the level of perceived stress potential of a problem is high and/or requires a professional's solution—each of

TABLE 3. Mutual Conditional Distributions of Satisfaction with Instrumental and Affective Response to Four Problems by Level of Perceived Stress Potential of Problem and Type of Problem Solver (In Per Cents)

Level of Perceived Stress Potential of the Problem	Type of Problem Solver	Satisfaction With Affective Response	Satisfaction with Instrumental Response: Very Satisfied	Satisfied	Somewhat Satisfied	Not so Satisfied	Not Satisfied	Very Dissatisfied	Total	Satisfaction with Instrumental Response: Very Satisfied	Satisfied	Somewhat Satisfied	Not so Satisfied	Not Satisfied	Very Dissatisfied
Low (problem requiring solution by *artisan*)	Nonprofessional	Very satisfied	65	26	7		2*		100 (43)	62	12	7		4*	
		Satisfied	14	66	14		5		100 (83)	27	61	27		13	
		Somewhat satisfied	5	25	60		10		100 (40)	4	11	55		13	
		Not satisfied	7	33	12		49		100 (43)	7	16	11		70	
										100 (45)	100 (90)	100 (44)		100 (30)	
Low (Problem requiring solution by GP)	Physician	Very satisfied	84	13		2†		1‡	100 (96)	68	9		5†		2‡
		Satisfied	19	72		4		5	100 (87)	14	46		8		9
		Somewhat satisfied	18	35		39		8	100 (66)	10	17		67		11
		Not so satisfied	9	38		17		36	100 (47)	4	13		21		36
		Not satisfied	12	42		—		47	100 (43)	4	14		—		43
										100 (118)	100 (135)		100 (39)		100 (47)
High (Problem requiring solution by medical administrator)	Nonprofessional	Very satisfied	80	17	—	3		1	100 (30)	63	5	—	3		—
		Satisfied	12	67	6	5		1	100 (91)	31	72	13	13		3
		Somewhat satisfied	—	16	61	16		7	100 (57)	—	10	74	24		12
		Not so satisfied	3	19	6	59		13	100 (32)						
		Not satisfied and very dissatisfied‡	2	15	10	10		63	100 (40)	3	6	4	50		12
										3	6	9	11		74
										100 (38)	100 (93)	100 (47)	100 (38)		100 (34)
High (Problem requiring solution by physician in hospital)	Physician	Very satisfied	89	10	—		1*		100 (100)	77	13	—			5*
		Satisfied	29	67	1		3		100 (79)	20	71	9			11
		Somewhat satisfied	4	35	43		17		100 (23)	1	11	91			21
		Not satisfied*	11	22	—		67		100 (18)	2	5	—			63
										(115)	(75)	(11)			(19)

* Due to size of N, categories "not so satisfied," "not satisfied," "very dissatisfied" were collapsed.
† Due to size of N, "somewhat satisfied" and "not so satisfied" were collapsed.
‡ Due to size of N, "not satisfied" and "very dissatisfied" were collapsed.

these factors apparently having separate significance. In fact, when both the stress potential of a problem and the professionalization of the problem solver are high (e.g., hospitalization), satisfaction with the agent's instrumental response will be determined, more often than in any other situation, by the agent's affective response: 89 per cent of the very satisfied with the affective behavior are very satisfied with the instrumental behavior, compared with 84 per cent (in the case of the GP) and 80 per cent (in the case of medical administrator). Furthermore, almost all 94 per cent of the "satisfied" with the affective behavior are very satisfied (29 per cent) or satisfied (67 per cent) with the instrumental behavior.

We think that these results support these suggestions by showing that when people face problems that are characterized by a high level of stress potential and that require solution by a professional, their satisfaction with the agent's instrumental behavior will frequently be determined by their satisfaction with the agent's affective behavior. These results seem to indicate that stress potential and the problem solver's professionalization affect *independently* the inclination to assess the agent's instrumental behavior on the basis of his/her affective behavior. That seems to be, to some extent, not entirely compatible with the logic by which both stress potential and professionalization are conceived to be necessary factors for such a manner of evaluation. We shall relate to this question in the discussion below.

Discussion and Summary

In this study, an attempt was made to investigate the extent to which the assumptions underlying a previously published model of professional–client relationship indeed determine the conclusions that were reached in those studies.[7,8] The assumptions that were considered crucial for the validity of that model were as follows: Clients' (patients' satisfaction with the content of the professional's (physician's) activities (medical treatment) will, to a great extent, be determined by the mode of their presentation, when clients (patients) a) are emotionally involved in the problem requiring the professional's (GP's) solution; b) in the course of the interaction lack the skills to judge the extent to which the professional's (physician's) activities contribute to their goal achievement; and c) frequently, upon completion of the interaction, are unable to attribute the goal achievement to the professional's (physician's) activities.

In order to validate the assumptions underlying that model, it was hypothesized that when clients face problems that involve a high stress potential and require a professional's solution, their satisfaction with the professional's instrumental behavior will be determined, in large measure, by the mode (affective behavior) of the response. Results of the study supported the hypothesis. However, data indicated that in contrast to the hypothesized trend, the stress potential of the problem and the need for a professional's solution have an *independent* impact on the extent to which clients' satisfaction with the instrumental component of the response will be determined by the affective behavior. Does that disagree with assumptions underlying the said patient–physician interaction model?[7,8] On the one hand, following strictly the model assumptions, it appears that the underlying logic requires the joint effect of both the stress potential and the need for professional help. On the other hand, however, it can be argued that the model did not specify the weight of each factor. Hence, our results may be considered supportive of that model. The data allude to the weight that each factor may have in enhancing the ability to judge the instrumental response with the help of the affective. Consequently, the greatest chances for judging the instrumental re-

sponse in such a manner will be when the problem involves both a high stress potential and professional help. Yet, the data regarding the case of the medical administrator are noteworthy. This "problem solver" occupies a somewhat intermediate position between the GP and hospitalization. Does this allude to the greater weight of the stress potential as compared with that of the need for professional help? This would contradict the logic of the model. The assumption was that patients apply the mode as a measure because of their ignorance of the medical techniques. That, however, is not the case with respect to the medical administrator, who applies clerical techniqies that should be considered judgeable by a layman. Two possible explanations are offered. On the one hand, we may safely assume that in a majority of circumstances, particularly in the Israeli setting where medical services are almost entirely prepaid, the medical administrator controls vital medical resources that frequently may even outrank those of the physician. Among these resources should be mentioned giving or withholding information, which is vital for clients who lack the proficiency for checking its correctness (such as the length of the waiting list for some vital medical service, available vacancies in maternity wards, etc.) or making decisions regarding referrals to medical institutions, including priorities, etc. On the other hand, it could be argued that since most services required from a medical administrator involve a high stress potential (as indeed the data in Table 1 indicate), and since frequently no immediate solution is attainable (a long waiting list for a specialist, no vacancy in preferred institution, etc.), the medical administrator's explanations and encouragement may indeed fulfill an important emotionally supportive function. In fact, we maintain that in such circumstances the situation of the administrator resembles to some extent that of a physician, namely, clients' ignorance regarding the required solution and the administrator's solution to a vital stressful problem. Under such circumstances, the emotional support given by the administrator may have a tension-alleviating function and consequently enhance clients' well-being. This conclusion seems to be congruent with the studies that showed the importance of the emotional support given to patients by the hospital staff in furthering their recovery.[4–6,9,17]

Thus, we think that our data support the previous model of the patient–physician interaction[7,8] by proving the significance of emotional support. However, they highlight an additional point by indicating the significance of emotional support provided not only by the physician, but also by those auxiliary personnel who are involved in solving highly pressing health problems.

Additional research will be required to verify these conclusions and their applicability to other cultural contexts and other situations, specifically those in which the help of auxiliary medical personnel is involved. We believe, however, that the significance of the present study is in its clarification of the utility of the model of the physician–patient interaction[7,8] by showing a) its specificity to the situation of the medical setting, proving that clients' propensity to assess the quality of an agent's activity on the basis of the mode of presentation is unique to the medical setting; b) that the stress potential of a problem and the need for a professional solution affect independently the propensity of assessing the responses in such a manner; c) that the judgment of the mode indeed determines the assessment of the quality of the content of the support and is not simply correlated with it; and d) that this pattern of assessment is not confined, as indicated in the previous model,[7,8] to the patient–physician interaction, but may apply also to the interaction with other roles in the medical setting. We believe that the present study may be considered as an additional contribution to the understanding of the conditions required for achieving satisfac-

tion with the treatment, which in turn may be conducive to the achievement of the goals of the treatment.

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Patient Suffering and Patient Satisfaction Among the Chronically Ill

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In a patient population with serious, debilitating chronic disease, the present study tested the hypothesis that a significant amount of variance in patient satisfaction ratings of provider behavior would be explained by patients' current assessment of their health and their social circumstances. More favorable patient ratings of the art, technical quality and efficacy of their care givers were found to be significantly associated with more positive general health perceptions, fewer days spent in bed due to health problems and lower scores on a widely used depression scale, as well as with age and ethnic background. These data provide evidence indicating that patient satisfaction measures are sensitive to and confounded by patients' perceived health, view of life and social circumstances. It is suggested that if patient satisfaction ratings are to be used as indicators of the quality of health care delivery, there is a need to account for the variance attributable to measurable psychological, social and demographic factors.

MEASURING PATIENT SATISFACTION has become an extremely popular way of assessing health services. It is generally assumed that patient ratings and evaluations of provider behaviors and services are a direct and accurate reflection of health care delivery.[1,2] However, one study has found that patients who were less satisfied with their life in general, or with the community facilities and resources, were also less satisfied with the medical care they were receiving.[3] This study led us to consider whether patient dissatisfaction may be in part related to other measurable factors, particularly the current affective orientation of the patient.

An opportunity to test the hypothesis that the ratings and evaluations of provider behavior are related to the patient's current perception of his/her social, physical and mental health arose in connection with a study of three subspecialty clinics and a large general ambulatory care center at a major teaching hospital. The extreme amount of discomfort reported and observed among chronically disabled outpatients who seek care in a university-based medical center[4–7] provided an excellent opportunity to explore how patient attitudes and ratings of their own health relate to the way they evaluate their health care providers.

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Method

Sample

The patients in the present study were sampled from three medical subspecialty clinics (Arthritis, Cardiology and Endocrinology), and a large general medical clinic (Medical Ambulatory Care Center) at the University of California in Los Angeles. For the subspecialty clinics, the sample consisted of all English-speaking patients who made at least one follow-up visit to one of the clinics between March 1, 1980 and October 31, 1980. Names were drawn from the appointment logs of each clinic, but new patients, cancellations, and people who did not show up were excluded.

For the Medical Ambulatory Care Center, the patient sample was also drawn from appointment logs, but sampling was based upon a random selection of clinic-days during the study period. Once again, all patients who kept a follow-up appointment on the selected clinic sessions became part of the sample population. Therefore, all patients in the sample are considered regular or continuing care patients.

In total, 804 patients were sampled and received questionnaires by mail (Arthritis, N = 186; Cardiology, N = 142; Endocrinology, N = 143; and General Medical, N = 333). After follow-up telephone calls to nonrespondents and a second mailing of the survey to them, completed and usable questionnaires were returned by 519 patients, constituting a 65 per cent response rate.

Design

The charts of all patients in the subspecialty clinic samples were examined in order to ascertain the patients' most current phone numbers and addresses. Most phone numbes and addresses for Medical Ambulatory Care patients were available on the clinic appointment logs. All patients eligible to be in the study were telephoned by a research assistant who explained the purpose of the study and informed them about the consent process required by the University. A script was carefully followed by the research assistant as a guide for answering patient questions about the study. If a patient could not be reached after three attempts, the questionnaire was sent to the patient. For patients who did not complete and return questionnaires within three weeks, follow-up phone calls that were also guided by a script calls were made.

Measurements

Patient Satisfaction. Three dimensions of satisfaction based upon the work of Ware et al.[1] and used by us in a previous study[8] were measured: 1) *Art of Care*, a nine-item scale assessing provider characteristics and behaviors such as interest, friendliness, courtesy, regard for privacy and degree of caring (Alpha reliability = 0.84); 2) *Technical Quality*, a six-item scale focusing on the competence of physicians in terms of their knowledge, thoroughness, skill and experience (Alpha reliability = 0.86); and 3) *Efficacy*, a four-item scale indicating the degree to which patients felt that doctors helped them to get well or feel better (Alpha reliability = 0.83). Each of these scales had positively and negatively worded statements scored on a five-point scale from strongly agree to strongly disagree. (The specific items are shown in the Appendix.)

Health Status. Five different measures were used: 1) *Disability Days*, a single question asking patients to report the number of days in the last month they had to stay in bed most or all of the time due to their health; 2) *General Health*, a four-item scale composed of ratings of pain and worry related to health and ratings of their general overall health (Alpha reliability = 0.84); 3) *Physical Abilities and Limitations*, a scale based on reports of patients'

ability to perform nine activities such as walking, climbing stairs, working or driving a car (Alpha reliability = 0.85); 4) *Social Health*, a four-item scale assessing the frequency of social contact with close friends or family over the past month (Alpha reliability = 0.75); and 5) the *Zung Self-Rating Depression scale*, a 20-item mental health measure of depression.[9,10] The previous four measures of health status were taken from the Rand Corporation Health Insurance study.[11,12]

Situational Variables. In addition to measures of perceived and reported health, the present study also explored the relationship between patient satisfaction and seven situational or demographic characteristics: age, sex, educational background, racial/ethnic background, marital status, current employment status, and the mode of transportation taken to and from the medical center.

Results

Prevalence of Satisfaction

Although a range of satisfaction was expressed by the patients sampled, ratings of care were high. All three scales had mean item scores around 4.0 on a five-point scale. Greatest satisfaction was with the Art of Care (mean 4.08); least satisfaction was expressed on the Efficacy scale (mean 3.90). Intercorrelations among the three satisfaction scales were high and statistically significant, ranging from 0.75 to 0.79.

Prevalence of Suffering

The patients in the present study reported a considerable amount of pain, suffering and disability. For example, 16 per cent reported having been in bed most or all of a day in the previous month. On the General Health scale, only 6 per cent rated their health as being "excellent" and 31 per cent as "good." the vast majority (63 per cent) rated their health as being "fair" or "poor." Also, 56 per cent reported having been in some or a great deal of pain in the past three months, and 90 per cent indicated that their health had worried or concerned them during that period.

Based on responses from the Physical Abilities and Limitations scale, 65 per cent of the patients had trouble walking several blocks or climbing stairs because of their health, 62 per cent had trouble working, and 13 per cent could not drive a car for health-related reasons. On the Social Health scale, 34 per cent of the patients were not visited by a friend in the past month, and 34 per cent did not themselves visit a friend. Finally, on the Zung Self-Rating Depression scale, only 45 per cent of the patients had scores in the normal range. Twenty-six per cent had scores indicating mild depression, 20 per cent moderate depression and 8 per cent were severely depressed.

Table 1 shows the intercorrelations among the health status indicators. Although all five indices are significantly correlated with each other, the four-item General Health scale had the strongest association with the other health measures. The Social Health scale had the weakest correlations with other indicators.

Situational Factors and Satisfaction

There were no significant associations between the three satisfaction measures and either sex or the mode of transportation used to get to the medical center. However, age was significantly correlated with all satisfaction measures ($p < 0.001$). As age increased, ratings of satisfaction increased. Educational background was not related to satisfaction with the art or technical quality of care. However, patients with less education were significantly more satisfied with the efficacy of care ($p < 0.05$).

One-way analysis of variance indicated that ethnic background was significantly

TABLE 1. Intercorrelations Among Health Status Indicators: Disability Days (DD), General Health (GH), Physical Abilities and Limitations (PAL), Social Health (SH) and Depression (D)

	DD	GH	PAL	SH	D
Disability days	—	−0.525	0.407	−0.129*	0.381
General health		—	−0.710	0.251	−0.585
Physical abilities and limitations			—	−0.269	0.499
Social health				—	−0.295
Depression					—

* $p < 0.01$; all other correlations $p < 0.0001$.

associated with satisfaction with the art of care ($p < 0.001$), the technical quality of care ($p < 0.09$) and the efficacy of care ($p < 0.01$). Consistently, black and Hispanic patients were more satisfied with their health services than Caucasian patients. With regard to marital stutus, single patients and those separated or divorced were the least satisfied with the technical quality ($p < 0.05$) and efficacy of care ($p < 0.01$). Widowed patients, and to a lesser extent those who were married, were the most satisfied on these two dimensions of care. Art-of-care ratings were not related to marital status, although the trends reflected the patterns of association of the other satisfaction measures.

Finally, employment status was found to be significantly associated with all satisfaction measures ($p < 0.05$ or $p < 0.01$). Retired patients were consistently the most satisfied; those unemployed were the least. Patients who worked expressed levels of satisfaction between these two groups. However, there were no apparent differences between full-time and part-time workers.

Suffering and Satisfaction

Table 2 shows the correlations between measures of health status and ratings of satisfaction. Patients who reported having spent more days in bed during the past month because of their health were consistently less satisfied with the health care they had been receiving on all three scales ($p < 0.0001$). Similarly, patients who were more depressed and who rated their general health as poorer were significantly

TABLE 2. Pearson Correlation Coefficients Between Health Status Measures and Ratings of Patient Satisfaction (N = 500)

Health Status	Satisfaction Ratings		
	Art of Care	Technical Quality	Efficacy
Number of days disabled	−0.181 *	−0.242 *	−0.245 *
General health	0.222 *	0.266 *	0.324 *
0.2222⅛	0.266*	0.324*	
Physical abilities/limitations	−0.065	−0.107†	−0.135†
Social health	0.044	−0.006	0.022
Depression (Zung SDS)	−0.215*	−0.209*	−0.263*

* $p < 0.0001$.
† $p < 0.01$.

less satisfied with their care ($p < 0.0001$). Patients with more physical limitations were also significantly more likely to express dissatisfaction with the technical quality and the efficacy of their care ($p < 0.01$). However, these correlations were much lower than those of the other health status indicators, and satisfaction with the art of care was unrelated to physical ability. Lastly, none of the satisfaction ratings was significantly associated with the social health measure.

Because of these significant associations and those reported between situational and demographic factors in the last section, it was decided to perform a step-wise multiple regression analysis for each of the satisfaction measures. As seen in Table 3, the General Health scale and the ethnicity of patients consistently and independently explained a significant amount of variance in all three satisfaction scales. Age also explained a significant amount of variance in two of the three measures. In summary, about 12 per cent of the variance in art-of-care ratings was explained by health status and situational variables, about 13 per cent of the variance in ratings of technical quality and 21 per cent of the variance in the efficacy ratings.

TABLE 3. Step-wise Multiple Regression Analysis for Variables Significantly Associated With Patient Satisfaction Ratings

Variables Entered	Multiple R	R^2
Art of Care		
General health	0.2449	0.0600
Ethnicity *	0.3181	0.1012
Age	0.3412	0.1164
Technical Quality		
General health	0.2983	0.0890
Ethnicity *	0.3286	0.1080
Marital status: being single	0.3533	0.1248
Disability days	0.3658	0.1338
Efficacy		
General health	0.3385	0.1146
Ethnicity *	0.3965	0.1572
Age	0.4377	0.1916
Driven to medical center	0.4536	0.2057
Depression	0.4621	0.2135

* Patients classified as racial minority or not.

Discussion

The present study was not designed to be a comprehensive or exhaustive analysis of factors associated with patient satisfaction. Rather, the purpose was to determine the degree to which evaluations of health care providers were correlated with situational characteristics and perceptions of health status among a patient population in which pain, suffering and disability were highly prevalent. The present study has documented that ratings of health were significantly associated with patient evaluations of their regular providers of health care services. Furthermore, the four-item measure of General Health explained most of the variance in such satisfaction ratings, more than longer physical and mental health measures. This finding, together with those linking satisfaction ratings to ethnicity, age and marital status, raises some concern about the validity of patient satisfaction ratings as a measure of the quality of health care delivery. We conclude that when patient ratings of physician behavior are to be used as indicators of the quality of care, the feelings of patients about their health, as well as characteristics of their social situation, need to be included as control variables.

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Appendix

Frequency distributions of responses to items measuring three dimensions of patient satisfaction: art of care, technical quality and efficacy of care.*

	Per Cent Agree	Per Cent Uncertain	Per Cent Disagree
Art of Care			
The doctors seemed to have a genuine interest in me as a person.	82	10	9
The doctors did their very best to keep me from worrying about things.	81	10	9
The doctors were very friendly and seemed devoted to me and other patients.	88	7	5
In general, all the clerks and receptionists were courteous and respectful.	87	5	8
No one seemed to care very much about my privacy.	6	9	86
The nurse treated me in a friendly manner.	95	3	2
The doctors took time to put me at ease and tried to make me more comfortable.	89	6	6

* Categories of strongly agree and agree were combined, as were strongly disagree and disagree.

The doctors caused me to worry because they did *not* explain things to me or tell me what was happening.	11	6	83
Doctors in this clinic don't want to bother with many of the things that really trouble me.	13	11	76
Technical Quality			
The doctors were not as thorough as they should have been.	16	10	73
The doctors seemed to lack experience with my kind of problem.	16	13	70
The doctors seemed very organized (knew what to do next and had my treatment well planned).	71	15	14
The doctors were very careful to check everything when examining me.	82	8	10
The quality of the care I received there was the best anyone could expect.	81	12	8
The doctors seemed very competent and well trained.	86	11	3
Efficacy			
The doctors helped me feel a lot better.	76	10	14
I am in better health now because of the care I received there.	70	17	12
The doctors did as much as could be expected to help me get well.	84	11	6
Some of the things the doctors did were *not* very helpful.	18	15	67

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Communication

Do Patients Want Access to Their Medical Records?

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Patient access to the medical record has a demonstrated effect on patient satisfaction and the physician–patient relationship. A study of 200 patients attending an outpatient clinic confirmed that most patients would like to receive a copy of their record, while slightly more than half felt there was a relationship between having the record and quality of care. The implications of giving patients a copy of their record is discussed.

THE DEBATE ABOUT PATIENT ACCESS to the medical record was focused sharply in 1973 when Shenkin and Warner proposed legislation requiring that a "complete and unexpurgated copy of all medical records, both inpatient and outpatient, be issued routinely and automatically to patients as soon as the services provided are recorded."[1] The potential advantages and disadvantages of any system that encourages patient access to the medical record are unsolved despite federal legislation,[2] the occasional implementation in a practice setting,[3,4] and the American Hospital Association's Patient's Bill of Rights.[5] Evidence that would suggest improvement in care when patients receive a copy of their medical record is meager.[4,6,7] Moreover, it is universally assumed that patients would indeed like to see their records and that such disclosure would benefit their medical care, and by implication, their health.

Unfortunately there has been no systematic study to ascertain patients' a priori feelings about receiving their medical records. The present study was undertaken to ask patients if they actually wanted to see their records and if they felt that reading their records would improve the quality of the care they receive from their physician. The hypothesis tested was that in the setting described patients would want to read their medical records but not necessarily to obtain an updated copy.

Methods

Two hundred patients attending the outpatient clinics of a municipal hospital of moderate size were given a short questionnaire by one of us (C.B.) during the month of May 1980. These patients were randomly selected from approximately 4,400 patients seen during that month. Each clinic area (Medicine, Surgery, OB–GYN, Ophthalmology, ENT and Dermatology) and each meeting time (day of week, and morning or afternoon) were equally represented in the sample.

The questionnaire contained four simple questions pertaining to the medical record. Revision through pretest analysis

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of the questions was accomplished three times.

Prior to individual administration of the questionnaire, a standard, brief introduction explained as clearly as possible the purpose of the questionnaire and attempted to make certain that the patient knew what was meant by the medical record. No one refused to complete the questionnaire; all were usable.

Results

The patients surveyed were identical to those typically served by the clinics. Medicare or Medicaid recipients accounted for 48 per cent of the patients seen, 32 per cent are county-supported indigent persons without any form of third-party coverage, 16 per cent earn salaries above the poverty level, and approximately 4 per cent are vocational rehabilitation clients, inpatients and the like. Of the patients surveyed, 74 per cent were black, 26 per cent were white, 71 per cent were females, and 29 per cent were males; the average age was 47.

Table 1 displays the responses to the four questions; each question is described in detail below.

Question 1. Should Patients Be Permitted to See Their Own Medical Records?

Almost 80 per cent of the patients responded affirmatively to this question. The responses did not vary significantly among men and women or age groups. The apparent difference between black and white respondents was not significant.

Question 2. Would Reading Your Medical Record Help You Understand What Is the Matter With You and What the Doctor Is Doing About It?

Sixty-seven per cent of the respondents felt that reading the chart would improve their understanding of their medical problems. There was not a significant variation in response among women and men or age and racial group.

Question 3. Would Reading Your Medical Record Improve the Quality of Medical Care You Receive?

Slightly more than half (54 per cent) of the patients felt that there was a positive relation between reading their chart and quality of care as they perceived it. Again, no difference in sex, age or race was evident in the responses.

TABLE 1.

Question		Response (%)*			
		Female	Male	White	Black
1. Should you see your record?	Yes	74	84	89	73
	No	23	12	11	23
	No opinion	3	4	0	4
2. Would reading it help you understand your illness?	Yes	65	72	64	69
	No	30	16	28	25
	No opinion	5	12	8	6
3. Would reading it improve quality of care?	Yes	54	53	55	53
	No	41	36	43	37
	No opinion	5	11	2	10
4. Should you have a personal copy?	Yes	52	48	36	57
	No	44	45	62	37
	No opinion	4	7	2	6

* Some columns add to more than 100 per cent due to rounding. Differences between all groups are insignificant at $p > 0.05$.

Question 4. Should You Be Given A Copy of Your Medical Record to Take Home With You if You Want It?

Fifty-two per cent agreed that a personal copy of the medical record should be made available if desired. There was no response difference between men and women, and although 36 per cent of white respondents, compared with 57 per cent of black respondents, answered yes to the question, the difference did not achieve statistical significance. No differences were apparent by sex within these racial groups or by ages.

Discussion

From the results of this study it is clear that patients generally desire access to their medical record and that more than half would want a personal copy. In addition to the questionnaire data, comments made by a number of patients suggested that they were not convinced that they could keep up with a copy of the chart or that having a copy was necessarily as important as simply reading it.

With this in mind, it has not been clearly demonstrated that patients should be given a copy of their medical records to take home in addition to an opportunity to see it in the doctor's office or at the hospital.

Although some medical practices routinely give patients a copy of their record, few studies have examined the impact of this practice. In a study of 125 patients admitted to a 16-bed rehabilitation medicine service, Golodetz, Ruess and Milhous[6] showed that the majority of the patients preferred having a copy of their record rather than a formal discussion with their doctor. Many made additions or corrections (50 per cent) or asked questions on vocabulary or meaning (60 per cent). There were no instances noted of patients unable to handle the information contained in the record.

Stevens and associates,[8] in a study of 25 hospital patients who were given access to their medical records, found that "comparisons of attitudes toward doctors, nurses, hospitals, medications, illness, and self showed no significant differences between the open-record group and a similar sized control group . . ." Only seven of the patients requested to see their records at times other than during the formal rounds, 17 received them passively during rounds, and one refused to look at her record altogether, insisting that she be told everything by her doctor. The authors felt that perhaps the patients did not feel that reading their records was going to improve either the care they received or their health, or they were not really concerned with the information contained in the records.

A study of patients who requested to see their medical record likewise showed little impact on the care received.[9] Only 11 patients from approximately 2,500 admissions during the time under study requested to see their charts. In no instance did receipt of the chart improve the quality of care or lead to the deterioration of the physician–patient relationship.

Finally, at the Given Health Care Center in Vermont, patients routinely receive a copy of clinic notes. Bouchard and Associates[3] have shown high levels of patient acceptance, as well as an apparent reduction in anxiety about health-related matters.

The present study is a first attempt at asking patients before they are actually given a copy of the record whether they think they should be allowed to read their medical records and whether they think such access would improve their understanding of their illness and its treatment. It has been found that patients are in fact interested in seeing their records "if they want to." However, the real question, whether or not they would want to see the records, remains.

In the preface to the questionnaire, patients were asked to assume that they could read their records and would have explained to them anything they did not understand. For this to be possible, several obvious changes would have to take place in today's record-keeping methods, all of which would cost both time and money (two particularly tight resources in the clinical setting). First, physicians would have to take more care in their note taking or have dictated notes. Second, records would have to be copied or reduced, and perhaps paraphrased. These processes would obviously add to the already high costs of record keeping. In our clinical setting, at least, the ability of the patient to understand much of what goes into the record is limited, thereby limiting the usefulness or benefit of record sharing. Furthermore, what appears in the medical record is usually an inadequate indicator of the events occurring in the visit.

Despite these obvious drawbacks, the apparent advantages of record sharing are impressive. Physicians and patients seem to get along better, and patients are often quite pleased with the information and attention they receive.[10] We cannot assume, however, that patients are longing to see their records and that granting them that access is necessarily good. Although the notion of showing the record has intuitive appeal, the dangers of implementing a procedure, test or treatment without proper evaluation under reasonably controlled circumstances are well known. Is there in fact any relationship between record sharing and improved patient health, other than patient satisfaction? The answer to this question may come from an ongoing, longitudinal prospective study.[11]

Satisfaction is necessary to the medical encounter, but it remains conjecture that access to the medical record is an important aspect of improving satisfaction, the physician–patient relationship or quality of care. Improved satisfaction is attributable equally to the Hawthorne effect and to possession of the medical record.

Herein must lie the central concern for those interested in the issue of patient access to the medical record. Until a connection between an important health-related aspect of medical care and the medical record is demonstrated, it is unreasonable to toss the record into the patient's lap in order either to improve understanding or to stave off apprehensions. The solution to problems inherent in the present day physician–patient interface might not be found through record sharing. Before the physician-related aspects of record keeping are diluted or lost, we must ask who should get a copy? Why should they get a copy? What are the expected benefits? And what are the potential harms? These questions deserve an answer before any health system adopts an intuitively pleasing idea.

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